

SEQUENCE LISTING

<110> ANDERSEN, Peter
SKJOT, Rikke

<120> ~~NUCLEIC ACID FRAGMENTS AND POLYPEPTIDE FRAGMENTS~~
~~DERIVED FROM M. TUBERCULOSIS Antigens~~

<130> 670001-2002.4

<140> 09/246,191 Herewith
<141> 1998-12-30

<150> 1997 01277
<151> 1997-10-11

<150> PCT/DK98/00438
<151> 1998-08-10

<150> PCT/DK98/00132
<151> 1998-01-04

<150> 60/070,488
<151> 1998-01-05

<160> 1993 257

<170> PatentIn Ver. 2.0

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<212> DNA
<213> Mycobacterium tuberculosis

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<213> Mycobacterium tuberculosis

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Gly Leu Asp Val Ser Asp Arg Ile Arg Val Val Met Ser Val Pro Ala
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Glu Arg Glu Asp Trp Ala Arg Thr His Arg Asp Leu Ile Ala Gly Glu
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100 105

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<213> Mycobacterium tuberculosis

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<213> Mycobacterium tuberculosis

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<211> 165

<212> PRT

<213> Mycobacterium tuberculosis

<400> 8

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Leu Pro Ala Val Gly Ser Pro Ala Pro Ala Phe Thr Leu Thr Gly Gly
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Asp Leu Gly Val Ile Ser Ser Asp Gln Phe Arg Gly Lys Ser Val Leu
35 40 45

Leu Asn Ile Phe Pro Ser Val Asp Thr Pro Val Cys Ala Thr Ser Val
50 55 60

Arg Thr Phe Asp Glu Arg Ala Ala Ala Ser Gly Ala Thr Val Leu Cys
65 70 75 80

Val Ser Lys Asp Leu Pro Phe Ala Gln Lys Arg Phe Cys Gly Ala Glu
85 90 95

Gly Thr Glu Asn Val Met Pro Ala Ser Ala Phe Arg Asp Ser Phe Gly
100 105 110

Glu Asp Tyr Gly Val Thr Ile Ala Asp Gly Pro Met Ala Gly Leu Leu
115 120 125

Ala Arg Ala Ile Val Val Ile Gly Ala Asp Gly Asn Val Ala Tyr Thr
130 135 140

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Ala Ala Leu Gly Ala
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<210> 9

<211> 1054

<212> DNA

<213> Mycobacterium tuberculosis

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<211> 217

<212> PRT

<213> Mycobacterium tuberculosis

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Thr Leu Ala Leu Val Ser Ala Pro Ala Gly Gly Arg Ala Ala His Ala
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Asp Pro Cys Ser Asp Ile Ala Val Val Phe Ala Arg Gly Thr His Gln
35 40 45

Ala Ser Gly Leu Gly Asp Val Gly Glu Ala Phe Val Asp Ser Leu Thr
50 55 60

Ser Gln Val Gly Gly Arg Ser Ile Gly Val Tyr Ala Val Asn Tyr Pro
65 70 75 80

Ala Ser Asp Asp Tyr Arg Ala Ser Ala Ser Asn Gly Ser Asp Asp Ala
85 90 95

Ser Ala His Ile Gln Arg Thr Val Ala Ser Cys Pro Asn Thr Arg Ile

100 105 110
Val Leu Gly Gly Tyr Ser Gln Gly Ala Thr Val Ile Asp Leu Ser Thr
115 120 125

Ser Ala Met Pro Pro Ala Val Ala Asp His Val Ala Ala Val Ala Leu
130 135 140

Phe Gly Glu Pro Ser Ser Gly Phe Ser Ser Met Leu Trp Gly Gly Gly
145 150 155 160

Ser Leu Pro Thr Ile Gly Pro Leu Tyr Ser Ser Lys Thr Ile Asn Leu
165 170 175

Cys Ala Pro Asp Asp Pro Ile Cys Thr Gly Gly Asn Ile Met Ala
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195 200 205

Ala Ala Asn Arg Leu Asp His Ala Gly
210 215

<210> 11
<211> 949
<212> DNA
<213> Mycobacterium tuberculosis

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<211> 182

<212> PRT

<213> Mycobacterium tuberculosis

<400> 12

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Ala Thr Leu His Thr Asn Arg Gly Asp Ile Lys Ile Ala Leu Phe Gly

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30

Asn His Ala Pro Lys Thr Val Ala Asn Phe Val Gly Leu Ala Gln Gly

35

40

45

Thr Lys Asp Tyr Ser Thr Gln Asn Ala Ser Gly Gly Pro Ser Gly Pro

50

55

60

Phe Tyr Asp Gly Ala Val Phe His Arg Val Ile Gln Gly Phe Met Ile

65

70

75

80

Gln Gly Gly Asp Pro Thr Gly Thr Gly Arg Gly Gly Pro Gly Tyr Lys

85

90

95

Phe Ala Asp Glu Phe His Pro Glu Leu Gln Phe Asp Lys Pro Tyr Leu

100

105

110

Leu Ala Met Ala Asn Ala Gly Pro Gly Thr Asn Gly Ser Gln Phe Phe

115

120

125

Ile Thr Val Gly Lys Thr Pro His Leu Asn Arg Arg His Thr Ile Phe

130

135

140

Gly Glu Val Ile Asp Ala Glu Ser Gln Arg Val Val Glu Ala Ile Ser

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155

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Lys Thr Ala Thr Asp Gly Asn Asp Arg Pro Thr Asp Pro Val Val Ile

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Glu Ser Ile Thr Ile Ser

180

<210> 13

<211> 1060

<212> DNA

<213> Mycobacterium tuberculosis

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<211> 219

<212> PRT

<213> Mycobacterium tuberculosis

<400> 14

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Ala Cys Pro Asp Ala Glu Val Val Phe Ala Arg Gly Arg Phe Glu Pro
35 40 45

Pro Gly Ile Gly Thr Val Gly Asn Ala Phe Val Ser Ala Leu Arg Ser
50 55 60

Lys Val Asn Lys Asn Val Gly Val Tyr Ala Val Lys Tyr Pro Ala Asp
65 70 75 80

Asn Gln Ile Asp Val Gly Ala Asn Asp Met Ser Ala His Ile Gln Ser
85 90 95

Met Ala Asn Ser Cys Pro Asn Thr Arg Leu Val Pro Gly Gly Tyr Ser
100 105 110

Leu Gly Ala Ala Val Thr Asp Val Val Leu Ala Val Pro Thr Gln Met
115 120 125

Trp Gly Phe Thr Asn Pro Leu Pro Pro Gly Ser Asp Glu His Ile Ala
130 135 140

Ala Val Ala Leu Phe Gly Asn Gly Ser Gln Trp Val Gly Pro Ile Thr
145 150 155 160

Asn Phe Ser Pro Ala Tyr Asn Asp Arg Thr Ile Glu Leu Cys His Gly
165 170 175

Asp Asp Pro Val Cys His Pro Ala Asp Pro Asn Thr Trp Glu Ala Asn
180 185 190

Trp Pro Gln His Leu Ala Gly Ala Tyr Val Ser Ser Gly Met Val Asn
195 200 205

Gln Ala Ala Asp Phe Val Ala Gly Lys Leu Gln
210 215

<210> 15

<211> 1198

<212> DNA

<213> Mycobacterium tuberculosis

<400> 15

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<212> PRT

<213> Mycobacterium tuberculosis

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5

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15

Ala Glu Ile Glu Leu Glu Ala Ala Arg Thr Phe Lys Arg His Ile Ala

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25

30

Gly Arg Arg Val Val Asp Val Ser Asp Pro Gly Gly Pro Val Thr Ala

35

40

45

Ala Val Ser Thr Gly Arg Leu Ile Asp Val Lys Ala Pro Thr Asn Gly

50

55

60

Val Ile Ala His Leu Arg Ala Ser Lys Pro Leu Val Arg Leu Arg Val

65

70

75

80

Pro Phe Thr Leu Ser Arg Asn Glu Ile Asp Asp Val Glu Arg Gly Ser

85

90

95

Lys Asp Ser Asp Trp Glu Pro Val Lys Glu Ala Ala Lys Lys Leu Ala

100

105

110

Phe Val Glu Asp Arg Thr Ile Phe Glu Gly Tyr Ser Ala Ala Ser Ile

115

120

125

Glu Gly Ile Arg Ser Ala Ser Ser Asn Pro Ala Leu Thr Leu Pro Glu

130

135

140

Asp Pro Arg Glu Ile Pro Asp Val Ile Ser Gln Ala Leu Ser Glu Leu

145

150

155

160

Arg Leu Ala Gly Val Asp Gly Pro Tyr Ser Val Leu Leu Ser Ala Asp

165

170

175

Val Tyr Thr Lys Val Ser Glu Thr Ser Asp His Gly Tyr Pro Ile Arg

180

185

190

Glu His Leu Asn Arg Leu Val Asp Gly Asp Ile Ile Trp Ala Pro Ala

195

200

205

Ile Asp Gly Ala Phe Val Leu Thr Thr Arg Gly Gly Asp Phe Asp Leu

210

215

220

Gln Leu Gly Thr Asp Val Ala Ile Gly Tyr Ala Ser His Asp Thr Asp

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<213> Mycobacterium tuberculosis

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<211> 15

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<213> Mycobacterium tuberculosis

<400> 18

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1 5 10 15

<210> 19

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

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<223> Xaa is unknown

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<212> PRT

<213> Mycobacterium tuberculosis

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<210> 21

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

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<223> Xaa is unknown

<400> 21

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<223> Val is Val or Phe

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1 5 10 15

<210> 23
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<213> Mycobacterium tuberculosis

<400> 23
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1 5 10 15
Ala Glu Ile

<210> 24
<211> 34
<212> DNA
<213> Mycobacterium tuberculosis

<400> 24
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<210> 25
<211> 37
<212> DNA
<213> Mycobacterium tuberculosis

<400> 25
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<210> 26

Bp 1000 900 800 700 600 500 400 300 200 100

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<400> 26	
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the *Thalassia* is the *Tanacetum* of Linnaeus.

<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 32
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<400> 38
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<210> 41
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 ggtggaaatgtt gcacgaccccg tgggtgcgtt ccagcctgtt ggcgttccaaac aacaccgggg 720
 tgggggtgtt gagcccgacc aacccggggccatg ccacgcgtt ccggccatg atcgccaa 780
 ccggccggaggc gatgggttac acggcgatgt tctacaacca gtatcgccac gtcggcggtt 840
 acaacggaca cttcgacttc ccagccacgtt gtgacaacccgg ctgggggttccg tggccggcccc 900
 agctggcggtt tatgtcggtt gatatcggtt gtgcgttccg ctaagcgaaat tc 952

<210> 42
 <211> 299

<212> PRT

<213> Mycobacterium tuberculosis

<400> 42

Met Lys Gly Arg Ser Ala Leu Leu Arg Ala Leu Trp Ile Ala Ala Leu
1 5 10 15

Ser Phe Gly Leu Gly Gly Val Ala Val Ala Ala Glu Pro Thr Ala Lys
20 25 30

Ala Ala Pro Tyr Glu Asn Leu Met Val Pro Ser Pro Ser Met Gly Arg
35 40 45

Asp Ile Pro Val Ala Phe Leu Ala Gly Gly Pro His Ala Val Tyr Leu
50 55 60

Leu Asp Ala Phe Asn Ala Gly Pro Asp Val Ser Asn Trp Val Thr Ala
65 70 75 80

Gly Asn Ala Met Asn Thr Leu Ala Gly Lys Gly Ile Ser Val Val Ala
85 90 95

Pro Ala Gly Gly Ala Tyr Ser Met Tyr Thr Asn Trp Glu Gln Asp Gly
100 105 110

Ser Lys Gln Trp Asp Thr Phe Leu Ser Ala Glu Leu Pro Asp Trp Leu
115 120 125

Ala Ala Asn Arg Gly Leu Ala Pro Gly Gly His Ala Ala Val Gly Ala
130 135 140

Ala Gln Gly Gly Tyr Gly Ala Met Ala Leu Ala Ala Phe His Pro Asp
145 150 155 160

Arg Phe Gly Phe Ala Gly Ser Met Ser Gly Phe Leu Tyr Pro Ser Asn
165 170 175

Thr Thr Thr Asn Gly Ala Ile Ala Ala Gly Met Gln Gln Phe Gly Gly
180 185 190

Val Asp Thr Asn Gly Met Trp Gly Ala Pro Gln Leu Gly Arg Trp Lys
195 200 205

Trp His Asp Pro Trp Val His Ala Ser Leu Leu Ala Gln Asn Asn Thr
210 215 220

Arg Val Trp Val Trp Ser Pro Thr Asn Pro Gly Ala Ser Asp Pro Ala
225 230 235 240

Ala Met Ile Gly Gln Thr Ala Glu Ala Met Gly Asn Ser Arg Met Phe
245 250 255

Tyr Asn Gln Tyr Arg Ser Val Gly Gly His Asn Gly His Phe Asp Phe
260 265 270

Pro Ala Ser Gly Asp Asn Gly Trp Gly Ser Trp Ala Pro Gln Leu Gly
275 280 285

Ala Met Ser Gly Asp Ile Val Gly Ala Ile Arg
290 295

<210> 43

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 43

gcaaacacccg ggatgtcgca aatcatg

27

<210> 44

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 44

gtaaacacccg gggtgccgc cgacccg

27

<210> 45

<211> 37

<212> DNA

<213> Mycobacterium tuberculosis

<400> 45

ctactaagct tggatcccta gccccccat ttggcgg

37

<210> 46

<211> 38

<212> DNA

<213> Mycobacterium tuberculosis

<400> 46

ctactaagct tccatggtca ggttttcg atgcttac

38

<210> 47

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 47

gtgccgcgct ccccagggtt cttatggttc gatatacctg agtttgatgg aagtccgatg 60
accagcagtc agcatacggc atggccgaaa agagtggtt gatgtggcc gaggatgttc 120
gcccgcagat cgtggccagc gttctcgaa tcgttgtcaa cgaaggcgat cagatcgaca 180
agggcgcacgt cgtgggtctg ctggagtcga tgaagatgga gatccccgtc ctggccgaaag 240
ctgcccggAAC ggtcagcaag gtggcggtat cgggtggcga tgcattcag gccggcgacc 300
ttatcgccgt gatcagctag tcgttgatag tcactcatgt ccacactcg tgatctgctc 360
gccgaacaca cggtgctgcc gggcagcgcg gtggaccacc tgcattcggt ggtcggggag 420
tggcagctcc ttgcccactt gtcgtttgcc 450

<210> 48

<211> 71

<212> PRT

<213> Mycobacterium tuberculosis

<400> 48

Met Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val
1 5 10 15

Val Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu
20 25 30

Leu Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly
35 40 45

Thr Val Ser Lys Val Ala Val Ser Val Gly Asp Val Ile Gln Ala Gly
50 55 60

Asp Leu Ile Ala Val Ile Ser
65 70

<210> 49

<211> 750

<212> DNA

<213> Mycobacterium tuberculosis

<400> 49

gggtacccat cgatgggttg cgggtcggca cccgggtgt aacgcacttg ctgacacact 60
gctagtcgaa aacgaggcta gtcgcaacgt cgatcacacg agaggactga ccatgacaac 120
ttcacccgac ccgtatgccc gctgccccaa gctgccgtcc ttcagcctga cgtcaacctc 180
gatcaccgat gggcagccgc tggctacacc ccagggtcagc gggatcatgg gtgcggggcg 240
ggcggatgcc agtccgcagc tgaggtggtc gggatttccc agcgagaccc gcagcttcgc 300
ggtaaccgtc tacgaccctg atgccccac cctgtccggg ttctggcaact gggcggtggc 360
caacctgcct gccaacgtca cccgagttgcc cgagggtgtc ggccatggcc gcgaactgcc 420

ggcgccccca ctgacattgg tcaacgacgc cggtatgcgc cggtatgtgg gtgcggcgcc 480
gcctcccggt catggggtgc atcgctacta cgtcgcggta cacgcggta aggtcgaaaa 540
gctcgacctc cccgaggacg cgagtcctgc atatctggga ttcaaccctgt tccagcacgc 600
gattgcacga gcggtcatct tcggcaccta cgagcagcgt tagcgctta gctgggttgc 660
cgacgtcttg ccgagccgac cgcttcgtgc agcgagccga acccgccgtc atgcagcctg 720
cgggcaatgc cttcatggat gtccttggcc 750

<210> 50

<211> 176

<212> PRT

<213> Mycobacterium tuberculosis

<400> 50

Met Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser
1 5 10 15

Phe Ser Leu Thr Ser Thr Ser Ile Thr Asp Gly Gln Pro Leu Ala Thr
20 25 30

Pro Gln Val Ser Gly Ile Met Gly Ala Gly Gly Ala Asp Ala Ser Pro
35 40 45

Gln Leu Arg Trp Ser Gly Phe Pro Ser Glu Thr Arg Ser Phe Ala Val
50 55 60

Thr Val Tyr Asp Pro Asp Ala Pro Thr Leu Ser Gly Phe Trp His Trp
65 70 75 80

Ala Val Ala Asn Leu Pro Ala Asn Val Thr Glu Leu Pro Glu Gly Val
85 90 95

Gly Asp Gly Arg Glu Leu Pro Gly Gly Ala Leu Thr Leu Val Asn Asp
100 105 110

Ala Gly Met Arg Arg Tyr Val Gly Ala Ala Pro Pro Pro Gly His Gly
115 120 125

Val His Arg Tyr Tyr Val Ala Val His Ala Val Lys Val Glu Lys Leu
130 135 140

Asp Leu Pro Glu Asp Ala Ser Pro Ala Tyr Leu Gly Phe Asn Leu Phe
145 150 155 160

Gln His Ala Ile Ala Arg Ala Val Ile Phe Gly Thr Tyr Glu Gln Arg
165 170 175

<210> 51
 <211> 800
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 51
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 gtgccgcacg ccgcctcacc agcctgggtt cccggccctt tgccggccgc acactgttgc 120
 ttaccccccgc gctggcacca cccggatcgg cggctgcgg ggatgcccgg gtgggtttcg 180
 cccgcggaaac cggcgaaacca cctggcctcg gtcgggttagg ccaagcttc gtcagttcat 240
 tgcgccagca gaccaacaag agcatcgga catacgagt caactacccg gccaacgggtg 300
 atttcttggc cggcgctgac ggcgcgaacg acgccagcga ccacattcag cagatggcca 360
 gcgcgtggcg ggccacgagg ttgggtctcg gcgcgtactc ccagggtgcg gccgtgatcg 420
 acatgtcacc cgcgcacca ctgccccggcc tcgggttac cgcggcttg cccggcccg 480
 cggacgatca catcgccgcg atcgccctgt tcggaaatcc ctcggggccgc gtcggcgccg 540
 tgatgagcgc cctgaccctt caattcggtt ccaagaccat caacctctgc aacaacggcg 600
 acccgatttgc ttggacggc aaccgggtggc gagcgcaccc aggtacgtg cccggatga 660
 ccaaccaggc ggcgcgttgc gtcgcgagca ggatctaacg cgagccgccc catagattcc 720
 ggctaaagcaa cggctgcgccc gccggccggc cacgagtgac cgccgcgcac tggcacacccg 780
 cttaccacgg ccttatgtcg 800

<210> 52
 <211> 226
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 52
 Met Ile Pro Arg Pro Gln Pro His Ser Gly Arg Trp Arg Ala Gly Ala
 1 5 10 15

Ala Arg Arg Leu Thr Ser Leu Val Ala Ala Ala Phe Ala Ala Ala Thr
 20 25 30

Leu Leu Leu Thr Pro Ala Leu Ala Pro Pro Ala Ser Ala Gly Cys Pro
 35 40 45

Asp Ala Glu Val Val Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Leu
 50 55 60

Gly Arg Val Gly Gln Ala Phe Val Ser Ser Leu Arg Gln Gln Thr Asn
 65 70 75 80

Lys Ser Ile Gly Thr Tyr Gly Val Asn Tyr Pro Ala Asn Gly Asp Phe
 85 90 95

· Leu Ala Ala Ala Asp Gly Ala Asn Asp Ala Ser Asp His Ile Gln Gln

100	105	110
Met Ala Ser Ala Cys Arg Ala Thr Arg Leu Val Leu Gly Gly Tyr Ser		
115	120	125
Gln Gly Ala Ala Val Ile Asp Ile Val Thr Ala Ala Pro Leu Pro Gly		
130	135	140
Leu Gly Phe Thr Gln Pro Leu Pro Pro Ala Ala Asp Asp His Ile Ala		
145	150	155
Ala Ile Ala Leu Phe Gly Asn Pro Ser Gly Arg Ala Gly Gly Leu Met		
165	170	175
Ser Ala Leu Thr Pro Gln Phe Gly Ser Lys Thr Ile Asn Leu Cys Asn		
180	185	190
Asn Gly Asp Pro Ile Cys Ser Asp Gly Asn Arg Trp Arg Ala His Leu		
195	200	205
Gly Tyr Val Pro Gly Met Thr Asn Gln Ala Ala Arg Phe Val Ala Ser		
210	215	220
Arg Ile		
225		

<210> 53
 <211> 700
 <212> DNA
 <213> *Mycobacterium tuberculosis*

<400> 53
 ctaggaaagc ctttcctgag taagtattgc cttcggttgc taccggccctt tacctgcgtt 60
 aatctgcatt ttatgacaga atacgaaggg cctaagacaa aattccacgc gttaatgcag 120
 gaacagattc ataacgaatt cacagcggca caacaatatg tcgcgatcgc ggtttatttc 180
 gacagcgaag acctgccgca gttggcgaag cattttaca gccaagcggt cgaggaacga 240
 aaccatgcaa tgatgctcgt gcaacacctg ctgcaccgcg accttcgtgt cgaaaattccc 300
 ggcgtagaca cggtgcgaaa ccagttcgac agaccccgcg aggcaactggc gctggcgctc 360
 gatcaggaac gcacagtcac cgaccaggc ggtcggctga cagcggtggc ccgcgacgag 420
 ggcgatttcc tcggcgagca gttcatgcag tggttcttgc aggaacagat cgaagaggtg 480
 gccttgcgttgg caaccctggc gccccggccg gggccaaacct gttcgagcta 540
 gagaacttcg tcgcacgtga agtggatgtg gcccggccg catcaggcgc cccgcacgct 600
 gccggggcc gcctctagat ccctggcgccg gatcaggcag tggtcccgtt cgcccgcccg 660
 tcttccagcc aggccttggc gccccgggg tggtgagtac 700

<210> 54
 <211> 181

<212> PRT

<213> Mycobacterium tuberculosis

<400> 54

Met Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln
1 5 10 15

Glu Gln Ile His Asn Glu Phe Thr Ala Ala Gln Gln Tyr Val Ala Ile
20 25 30

Ala Val Tyr Phe Asp Ser Glu Asp Leu Pro Gln Leu Ala Lys His Phe
35 40 45

Tyr Ser Gln Ala Val Glu Glu Arg Asn His Ala Met Met Leu Val Gln
50 55 60

His Leu Leu Asp Arg Asp Leu Arg Val Glu Ile Pro Gly Val Asp Thr
65 70 75 80

Val Arg Asn Gln Phe Asp Arg Pro Arg Glu Ala Leu Ala Leu Ala Leu
85 90 95

Asp Gln Glu Arg Thr Val Thr Asp Gln Val Gly Arg Leu Thr Ala Val
100 105 110

Ala Arg Asp Glu Gly Asp Phe Leu Gly Glu Gln Phe Met Gln Trp Phe
115 120 125

Leu Gln Glu Gln Ile Glu Glu Val Ala Leu Met Ala Thr Leu Val Arg
130 135 140

Val Ala Asp Arg Ala Gly Ala Asn Leu Phe Glu Leu Glu Asn Phe Val
145 150 155 160

Ala Arg Glu Val Asp Val Ala Pro Ala Ala Ser Gly Ala Pro His Ala
165 170 175

Ala Gly Gly Arg Leu
180

<210> 55

<211> 950

<212> DNA

<213> Mycobacterium tuberculosis

<400> 55

tgggctcggc actggctctc ccacggtggc gcgtgttgc tccccacgg taggcgttgc 60

gacgcatgtt cttcaccgtc tatccacagc taccgacatt tgctccggct ggatcgcg 120
taaaattccg tcgtgaacaa tcgaccatc cgccgtctga catccggcag ggctggtt 180
ggtgccggcg cattgatcac cgccgtctgc ctgctcatcg ccttggcgc tggttgacc 240
ccgggtgcct tcgcccgtt atgcccggac gccaaggta cgttcgcccc cgccaccggc 300
gagccgcccc gaatcgcccg cggttgcgtcg actcgctgcg ccagcagact 360
ggcatggaga tcggagtata cccggtaat tacgcccaca gccgcctaca gctgcacggg 420
ggagacggcg ccaacgacgc catatgcac attaagtcca tggcctcgta atgcccgaac 480
accaagctgg tcttggccgg ctattcgac ggcgcacccg tgatcgatat cgtggccggg 540
gttccgttgg gcagcatcag ctttggcagt ccgctacctg cggcatacgc agacaacg 600
gcagcggcgtcg cggcttcgg caatccgtcc aaccgcgcgg gggatcgct gtcgagcctg 660
agcccgctat tcggttccaa ggcgattgac ctgtgcaatc ccaccgatcc gatctgccat 720
gtggggccccg gcaacgaatt cagcggacac atcgcggct acataaccac ctacaccacc 780
caggcggcta gttcgtcgt gcagaggctc cggccgggt cgggccaca tctgcctgga 840
tccgtcccg agctgccccg gtctgtcctt cagatgccccg gcaactggcgc accggctccc 900
aatcgctgc acggtcgtc acgcttgtc agtaagccca taaaatcgcg 950

<210> 56

<211> 262

<212> PRT

<213> Mycobacterium tuberculosis

<400> 56

Met Asn Asn Arg Pro Ile Arg Leu Leu Thr Ser Gly Arg Ala Gly Leu

1 5 10 15

Gly Ala Gly Ala Leu Ile Thr Ala Val Val Leu Leu Ile Ala Leu Gly

20 25 30

Ala Val Trp Thr Pro Val Ala Phe Ala Asp Gly Cys Pro Asp Ala Glu

35 40 45

Val Thr Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Ile Gly Arg Val

50 55 60

Gly Gln Ala Phe Val Asp Ser Leu Arg Gln Gln Thr Gly Met Glu Ile

65 70 75 80

Gly Val Tyr Pro Val Asn Tyr Ala Ala Ser Arg Leu Gln Leu His Gly

85 90 95

Gly Asp Gly Ala Asn Asp Ala Ile Ser His Ile Lys Ser Met Ala Ser

100 105 110

Ser Cys Pro Asn Thr Lys Leu Val Leu Gly Gly Tyr Ser Gln Gly Ala

115 120 125

Thr Val Ile Asp Ile Val Ala Gly Val Pro Leu Gly Ser Ile Ser Phe

130 135 140

Gly Ser Pro Leu Pro Ala Ala Tyr Ala Asp Asn Val Ala Ala Val Ala
145 150 155 160

Val Phe Gly Asn Pro Ser Asn Arg Ala Gly Gly Ser Leu Ser Ser Leu
165 170 175

Ser Pro Leu Phe Gly Ser Lys Ala Ile Asp Leu Cys Asn Pro Thr Asp
180 185 190

Pro Ile Cys His Val Gly Pro Gly Asn Glu Phe Ser Gly His Ile Asp
195 200 205

Gly Tyr Ile Pro Thr Tyr Thr Thr Gln Ala Ala Ser Phe Val Val Gln
210 215 220

Arg Leu Arg Ala Gly Ser Val Pro His Leu Pro Gly Ser Val Pro Gln
225 230 235 240

Leu Pro Gly Ser Val Leu Gln Met Pro Gly Thr Ala Ala Pro Ala Pro
245 250 255

Glu Ser Leu His Gly Arg

260

<210> 57

<211> 1000

<212> DNA

<213> *Mycobacterium tuberculosis*

<400> 57

cgaggagacc gacgatctgc tcgacgaaat cgacgacgtc ctcgaggaga acgccgagga 60
cttcgtccgc gcatacgtcc aaaagggcgg acagtgcacct ggccgttgcc cgatcgccctg 120
tccattaatt cactctctgg aacaccgcgt gttagacctat cttctttcac tgacttcctg 180
cgccgcccagg cgccggaggta gctgcccgc agcatcagcg gcgggtgcgc actcgcaggc 240
ggcgtgcgc aactgcccgc cggcaccacc attgtcgccgc tggaaataccc cggcggtgtt 300
gtcatggcgg gtgaccggcg ttgcacgcag ggcaacatga tttctggcg tggatgtgcgc 360
aagggtgtata tcaccgatga ctacaccgcgt accggcatcg ctggcacggc tggcggtcg 420
gtttagtttgc cccggctgtta tgccgtggaa ctttgagact acgagaagct cgagggtgtg 480
ccgctgacgt ttggccggcaa aatcaaccgg ctggcgattta tgggtgcgtgg caatctggcg 540
gccgcgatgc agggtctgtc ggcgttgcgg ttgtctggcg gctacgacat tcatgcgtct 600
gaccgcgaca ggcgggtcg tatcggttcg ttgcacgcgc ccggcggttg gaacatcgag 660
gaagagggct atcaggcggt gggctcggtt tcgctgttcg cgaagtcgtc gatgaagaag 720
ttgttattcgc aggttaccga cggtgattcg gggctgcggg tggcggtcg aggcgctctac 780
gacgcccgcg acgacgactc cggccaccggc ggtccggacc tgggtgcgggg catctttccg 840
acggcggtga tcatcgacgc cgaacggggcg gttgacgtgc cggagagccg gattgcccga 900
ttggcccccgcg cgatcatcgaa aaggcggtcg ggtcgccgata ctttcggtc cgtatggcggt 960

gagaagttag tttccgtat ttcatctcgc ctgagcaggc 1000
 <210> 58
 <211> 291
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 58
 Met Thr Trp Pro Leu Pro Asp Arg Leu Ser Ile Asn Ser Leu Ser Gly
 1 5 10 15

Thr Pro Ala Val Asp Leu Ser Ser Phe Thr Asp Phe Leu Arg Arg Gln
 20 25 30

Ala Pro Glu Leu Leu Pro Ala Ser Ile Ser Gly Gly Ala Pro Leu Ala
 35 40 45

Gly Gly Asp Ala Gln Leu Pro His Gly Thr Thr Ile Val Ala Leu Lys
 50 55 60

Tyr Pro Gly Gly Val Val Met Ala Gly Asp Arg Arg Ser Thr Gln Gly
 65 70 75 80

Asn Met Ile Ser Gly Arg Asp Val Arg Lys Val Tyr Ile Thr Asp Asp
 85 90 95

Tyr Thr Ala Thr Gly Ile Ala Gly Thr Ala Ala Val Ala Val Glu Phe
 100 105 110

Ala Arg Leu Tyr Ala Val Glu Leu Glu His Tyr Glu Lys Leu Glu Gly
 115 120 125

Val Pro Leu Thr Phe Ala Gly Lys Ile Asn Arg Leu Ala Ile Met Val
 130 135 140

Arg Gly Asn Leu Ala Ala Ala Met Gln Gly Leu Leu Ala Leu Pro Leu
 145 150 155 160

Leu Ala Gly Tyr Asp Ile His Ala Ser Asp Pro Gln Ser Ala Gly Arg
 165 170 175

Ile Val Ser Phe Asp Ala Ala Gly Gly Trp Asn Ile Glu Glu Glu Gly
 180 185 190

Tyr Gln Ala Val Gly Ser Gly Ser Leu Phe Ala Lys Ser Ser Met Lys
 195 200 205

Lys Leu Tyr Ser Gln Val Thr Asp Gly Asp Ser Gly Leu Arg Val Ala

210

215

220

Val Glu Ala Leu Tyr Asp Ala Ala Asp Asp Asp Ser Ala Thr Gly Gly
225 230 235 240

Pro Asp Leu Val Arg Gly Ile Phe Pro Thr Ala Val Ile Ile Asp Ala
245 250 255

Asp Gly Ala Val Asp Val Pro Glu Ser Arg Ile Ala Glu Leu Ala Arg
260 265 270

Ala Ile Ile Glu Ser Arg Ser Gly Ala Asp Thr Phe Gly Ser Asp Gly
275 280 285

Gly Glu Lys
290

<210> 59

<211> 900

<212> DNA

<213> *Mycobacterium tuberculosis*

<400> 59

ttggcccgcg cgatcatcga aagccgttcg ggtgcggata ctttcggctc cgatggcggt 60
gagaagttag tttccgtat ttcatctcgc ctgagcaggc gatgcgcgag cgacgcgagt 120
tggcgcgtaa gggcattgctcg cggggccaaaaa gcgtggtggc gctggccat gccgggtgg 180
tgctgttcgt cgccggagaat ccgtcgcggc cgctgcagaa gatcagttag ctctacgatc 240
gggtgggttt tgccgctgcg ggcaagttca acgagttcga caatttgcgc cgccggcgaa 300
tccagttcgc cgacacccgc ggttacgcct atgaccgtcg tgacgtcacg ggtcggcagt 360
tggccaatgt ctacgcgcag actctaggca ccattttcac cgaacaggcc aagccctacg 420
aggtttagtt gtgtgtggcc gaggtggcgc attacggcga gacgaaacgc cctgagttgt 480
atcgattttac ctacgcacggg tcgatgcgcg acgagccgca tttcgtggtg atggggcgca 540
ccacggagcc gatgcacaac ggcgtcaaag agtctgtatgc cgagaacgcc agcctgaccg 600
acgcccctgcg tatcgccggc gctgcattgc gggccggcag tgccgacacc tcgggtggtg 660
atcaacccac ccttggcggt gccagcttag aggtggccgt tctcgatgcc aaccggccac 720
ggcgcgcgtt ccggcgcatac accggctccg ccctgcaagc gttgctggta gaccaggaaa 780
gccccgcagtc tgacggcgaa tcgtcgggct gagtccgaaa gtccgacgcg tgcgtggac 840
cccgctgcga cgttaactgc gcctaaccggc ggctcgacgc gtcggccggcc gtcctgactt 900

<210> 60

<211> 248

<212> PRT

<213> *Mycobacterium tuberculosis*

<400> 60

Met Ser Phe Pro Tyr Phe Ile Ser Pro Glu Gln Ala Met Arg Glu Arg

1

5

10

15

Ser Glu Leu Ala Arg Lys Gly Ile Ala Arg Ala Lys Ser Val Val Ala
20 25 30

Leu Ala Tyr Ala Gly Gly Val Leu Phe Val Ala Glu Asn Pro Ser Arg
35 40 45

Ser Leu Gln Lys Ile Ser Glu Leu Tyr Asp Arg Val Gly Phe Ala Ala
50 55 60

Ala Gly Lys Phe Asn Glu Phe Asp Asn Leu Arg Arg Gly Ile Gln
65 70 75 80

Phe Ala Asp Thr Arg Gly Tyr Ala Tyr Asp Arg Arg Asp Val Thr Gly
85 90 95

Arg Gln Leu Ala Asn Val Tyr Ala Gln Thr Leu Gly Thr Ile Phe Thr
100 105 110

Glu Gln Ala Lys Pro Tyr Glu Val Glu Leu Cys Val Ala Glu Val Ala
115 120 125

His Tyr Gly Glu Thr Lys Arg Pro Glu Leu Tyr Arg Ile Thr Tyr Asp
130 135 140

Gly Ser Ile Ala Asp Glu Pro His Phe Val Val Met Gly Gly Thr Thr
145 150 155 160

Glu Pro Ile Ala Asn Ala Leu Lys Glu Ser Tyr Ala Glu Asn Ala Ser
165 170 175

Leu Thr Asp Ala Leu Arg Ile Ala Val Ala Ala Leu Arg Ala Gly Ser
180 185 190

Ala Asp Thr Ser Gly Gly Asp Gln Pro Thr Leu Gly Val Ala Ser Leu
195 200 205

Glu Val Ala Val Leu Asp Ala Asn Arg Pro Arg Arg Ala Phe Arg Arg
210 215 220

Ile Thr Gly Ser Ala Leu Gln Ala Leu Leu Val Asp Gln Glu Ser Pro
225 230 235 240

Gln Ser Asp Gly Glu Ser Ser Gly
245

<211> 1560

<212> DNA

<213> Mycobacterium tuberculosis

<400> 61

gagtcatgtc ctggtcggcg tcattccgtta ctagtcggtt gtcggacttg acctactggg 60
tcaggccgac gagcaactcga ccatttagggt agggggccgtg acccaactatg acgtcgtcgt 120
tctcgagcc ggtcccggcg ggtatgtcgc ggcgattcgc gccgcacagc tcggcctgag 180
caactgcaatc gtcaaaccca agtactgggg cggagtatgc ctcaatgtcg gctgtatccc 240
atccaaggcg ctgttgcgca acgcccgaact ggtccacatc ttcaccaagg acgccaaagc 300
atttggcatac agccgcgagg tgaccttcga ctacggcatac gcctatgacc gcagccgaaa 360
ggtagccgag ggcagggtgg ccggtgtgca cttcctgtatg aagaagaaca agatcaccga 420
gatccacggg tacggcacat ttgccgacgc caaacacgtt tgggttgc tcaacgacgg 480
cggtacagaa tcggtcacgt tcgacaacgc catcatcgc accggcagta gcacccggct 540
ggttccggc acctcactgt cggccaaacgt agtcacctac gaggaacaga tcctgtcccg 600
agagctgccc aaatcgatca ttattgccc agctgggtcc attggcatgg agtccggcta 660
cgtgctgaag aactacggcg ttgacgtgac catcgtggaa ttccctccgc gggcgctgcc 720
caacgaggac gccgatgtgt ccaaggagat cgagaagcag ttcaaaaagc tgggtgtcac 780
gatcctgacc gccacgaagg tcgagtccat cgccgatggc gggtcgcagg tcaccgtgac 840
cgtcaccacaa gacggcgtgg cgcaagagct taaggcggaa aagggtgtgc agggccatcg 900
atttgcgccc aacgtcgaag ggtacgggct ggacaaggca ggcgtcgcgc tgaccgaccg 960
caaggctatc ggtgtcgacg actacatcgc taccacgtt ggccacatct acgtatcgg 1020
cgatgtcaat ggattactgc agctggcgcg cgtcgccgag gcacaaggcg tggtagccgc 1080
cgaaaccatt gccggcgcag agactttgac gctggcgcac catcgatgt tgccgcgcgc 1140
gacgttctgt cagccaaacg ttgccagctt cgggctcacc gagcagcaag cccgcaacga 1200
aggttacac gttgtgtgg ccaagttccc gttcacggcc aacgccaagg cgacacggcgt 1260
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ggcgctgcag gagtgcttcc acggcctgtt tggccacatg atcaatttct gagcggctca 1500
tgacgaggcg cgcgagcact gacacccccc agatcatcat gggtgccatc ggtgggtgtgg 1560

<210> 62

<211> 464

<212> PRT

<213> Mycobacterium tuberculosis

<400> 62

Met Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr

1

5

10

15

Val Ala Ala Ile Arg Ala Ala Gln Leu Gly Leu Ser Thr Ala Ile Val

20

25

30

Glu Pro Lys Tyr Trp Gly Gly Val Cys Leu Asn Val Gly Cys Ile Pro

35

40

45

Ser Lys Ala Leu Leu Arg Asn Ala Glu Leu Val His Ile Phe Thr Lys

50

55

60

Asp Ala Lys Ala Phe Gly Ile Ser Gly Glu Val Thr Phe Asp Tyr Gly
 65 70 75 80

Ile Ala Tyr Asp Arg Ser Arg Lys Val Ala Glu Gly Arg Val Ala Gly
 85 90 95

Val His Phe Leu Met Lys Lys Asn Lys Ile Thr Glu Ile His Gly Tyr
 100 105 110

Gly Thr Phe Ala Asp Ala Asn Thr Leu Leu Val Asp Leu Asn Asp Gly
 115 120 125

Gly Thr Glu Ser Val Thr Phe Asp Asn Ala Ile Ile Ala Thr Gly Ser
 130 135 140

Ser Thr Arg Leu Val Pro Gly Thr Ser Leu Ser Ala Asn Val Val Thr
 145 150 155 160

Tyr Glu Glu Gln Ile Leu Ser Arg Glu Leu Pro Lys Ser Ile Ile Ile
 165 170 175

Ala Gly Ala Gly Ala Ile Gly Met Glu Phe Gly Tyr Val Leu Lys Asn
 180 185 190

Tyr Gly Val Asp Val Thr Ile Val Glu Phe Leu Pro Arg Ala Leu Pro
 195 200 205

Asn Glu Asp Ala Asp Val Ser Lys Glu Ile Glu Lys Gln Phe Lys Lys
 210 215 220

Leu Gly Val Thr Ile Leu Thr Ala Thr Lys Val Glu Ser Ile Ala Asp
 225 230 235 240

Gly Gly Ser Gln Val Thr Val Thr Lys Asp Gly Val Ala Gln
 245 250 255

Glu Leu Lys Ala Glu Lys Val Leu Gln Ala Ile Gly Phe Ala Pro Asn
 260 265 270

Val Glu Gly Tyr Gly Leu Asp Lys Ala Gly Val Ala Leu Thr Asp Arg
 275 280 285

Lys Ala Ile Gly Val Asp Asp Tyr Met Arg Thr Asn Val Gly His Ile
 290 295 300

Tyr Ala Ile Gly Asp Val Asn Gly Leu Leu Gln Leu Ala His Val Ala

305	310	315	320
Glu Ala Gln Gly Val Val Ala Ala Glu Thr Ile Ala Gly Ala Glu Thr			
325	330	335	
Leu Thr Leu Gly Asp His Arg Met Leu Pro Arg Ala Thr Phe Cys Gln			
340	345	350	
Pro Asn Val Ala Ser Phe Gly Leu Thr Glu Gln Gln Ala Arg Asn Glu			
355	360	365	
Gly Tyr Asp Val Val Val Ala Lys Phe Pro Phe Thr Ala Asn Ala Lys			
370	375	380	
Ala His Gly Val Gly Asp Pro Ser Gly Phe Val Lys Leu Val Ala Asp			
385	390	395	400
Ala Lys His Gly Glu Leu Leu Gly Gly His Leu Val Gly His Asp Val			
405	410	415	
Ala Glu Leu Leu Pro Glu Leu Thr Leu Ala Gln Arg Trp Asp Leu Thr			
420	425	430	
Ala Ser Glu Leu Ala Arg Asn Val His Thr His Pro Thr Met Ser Glu			
435	440	445	
Ala Leu Gln Glu Cys Phe His Gly Leu Val Gly His Met Ile Asn Phe			
450	455	460	

<210> 63
 <211> 550
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 63
 ggcccggtc gcggccgccc tgcaggaaaa gaaggcctgc ccaggcccag actcagccga 60
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 cgaactgctg gacgogttca aggaaatgac cctgttggag ctctccgact tcgtcaagaa 180
 gttcgaggag accttcgagg tcaccgccc cgctccagtc gccgtcgccg cgcgggtgc 240
 cgcggccggcc ggtgccgccc tcgaggctgc cgaggagcac tccgagttcg acgtgatcct 300
 tgaggccgccc ggcgacaaga agatcggcgt catcaaggtg gtccgggaga tcgtttccgg 360
 cctgggcctc aaggaggcca aggacctggt cgacggcgcg cccaagccgc tgctggagaa 420
 ggtcgccaag gaggccgccc acgaggccaa ggccaagctg gaggccgccc ggcgcaccgt 480
 caccgtcaag tagctctgcc cagcgtgttc ttttgcgtct gctcggcccg tagcgaacac 540

tgcgccccgt

550

<210> 64

<211> 130

<212> PRT

<213> Mycobacterium tuberculosis

<400> 64

Met Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met

1

5

10

15

Thr Leu Leu Glu Leu Ser Asp Phe Val Lys Lys Phe Glu Glu Thr Phe

20

25

30

Glu Val Thr Ala Ala Ala Pro Val Ala Val Ala Ala Gly Ala Ala

35

40

45

Pro Ala Gly Ala Ala Val Glu Ala Ala Glu Glu Gln Ser Glu Phe Asp

50

55

60

Val Ile Leu Glu Ala Ala Gly Asp Lys Lys Ile Gly Val Ile Lys Val

65

70

75

80

Val Arg Glu Ile Val Ser Gly Leu Gly Leu Lys Glu Ala Lys Asp Leu

85

90

95

Val Asp Gly Ala Pro Lys Pro Leu Leu Glu Lys Val Ala Lys Glu Ala

100

105

110

Ala Asp Glu Ala Lys Ala Lys Leu Glu Ala Ala Gly Ala Thr Val Thr

115

120

125

Val Lys

130

<210> 65

<211> 900

<212> DNA

<213> Mycobacterium tuberculosis

<400> 65

tgaacgccat cgggtccaac gaacgcagcg ctacctgatc accaccgggt ctgttagggc 60

tcttccccag gtcgtacagt cgggccatgg ccattgaggt ttcgggtttg cgggtttca 120

ccgattcaga cgggaatttc ggtaatccgc tgggggtgat caacgcccagc aaggtcgaac 180

accgcgacag gcagcagctg gcagccaaat cgggctacag cggaaaccata ttctgtcgatc 240

ttcccgcccc cggctcaacc accgcacacag ccaccatcca tactccccgc accgaaattc 300

cgttcgcccc acacccgacc gtgggagcgt cctggtggtc gcgcgagagg gggacgccaa 360

ttaacacgct gcaggtgccg gccggcatcg tccaggttag ctaccacggt gatctcacgg 420
ccatcagcgc ccgcgtcgaa tgggcacccg agttcgccat ccacgacctg gattcaactg 480
atgcgcgttc cgccgcccac cccgcccact ttccggacga catgcgcac tacctctgga 540
cctggaccga ccgcgtccgct ggctcgctgc ggcgcgcacat gtttgcgc aacttggcg 600
tcaccgaaga cgaagcgacc ggtgccgcgg ccatccggat taccgattac ctcagccgtg 660
acctcaccat caccaggc aaaggatcgt tgatccacac cacctggagt cccgaggcg 720
gggttcgggt agccggccga gttgtcagcg acggtgtggc acaactcgac tgacgttagag 780
ctcagcgctg ccgatgcaac acggcggcaa ggtgatcctg caggggttgc ccgaccgcgc 840
gcatctgcaa cgagtagcga agctcgctgc cgatcgatgcg gtaggaacgg tcaagggcg 900

<210> 66

<211> 228

<212> PRT

<213> Mycobacterium tuberculosis

<400> 66

Met Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly

1 5 10 15

Asn Phe Gly Asn Pro Leu Gly Val Ile Asn Ala Ser Lys Val Glu His

20 25 30

Arg Asp Arg Gln Gln Leu Ala Ala Gln Ser Gly Tyr Ser Glu Thr Ile

35 40 45

Phe Val Asp Leu Pro Ser Pro Gly Ser Thr Thr Ala His Ala Thr Ile

50 55 60

His Thr Pro Arg Thr Glu Ile Pro Phe Ala Gly His Pro Thr Val Gly

65 70 75 80

Ala Ser Trp Trp Leu Arg Glu Arg Gly Thr Pro Ile Asn Thr Leu Gln

85 90 95

Val Pro Ala Gly Ile Val Gln Val Ser Tyr His Gly Asp Leu Thr Ala

100 105 110

Ile Ser Ala Arg Ser Glu Trp Ala Pro Glu Phe Ala Ile His Asp Leu

115 120 125

Asp Ser Leu Asp Ala Leu Ala Ala Asp Pro Ala Asp Phe Pro Asp

130 135 140

Asp Ile Ala His Tyr Leu Trp Thr Trp Thr Asp Arg Ser Ala Gly Ser

145 150 155 160

Leu Arg Ala Arg Met Phe Ala Ala Asn Leu Gly Val Thr Glu Asp Glu

165 170 175

Ala Thr Gly Ala Ala Ala Ile Arg Ile Thr Asp Tyr Leu Ser Arg Asp
180 185 190

Leu Thr Ile Thr Gln Gly Lys Gly Ser Leu Ile His Thr Thr Trp Ser
195 200 205

Pro Glu Gly Trp Val Arg Val Ala Gly Arg Val Val Ser Asp Gly Val
210 215 220

Ala Gln Leu Asp
225

<210> 67

<211> 500

<212> DNA

<213> Mycobacterium tuberculosis

<400> 67

gtttgtggtg tcgggtgtct ggggggcgcc aactgggatt cgggtgggtt ggggtcaggt 60
ccggcgatgg gcatcgagg tgggtgggt ttgggtgggg ccgggttcggg tccggcgatg 120
ggcatggggg gtgtgggtgg tttgggtggg gccgggttcgg gtccggcgat gggcatgggg 180
ggtgtgggtg gtttagatgc ggccgggtcc ggcgaggggcg gcttcctgc ggcgatcggc 240
atcgaggatg gcgaggaggcg aggtgggggt ggggggtggcg gcggcggggc cgacacgaac 300
cgctccgaca ggtcgctcgga cgtcgggggc ggagtctggc cggtgggtt cgtaggttt 360
gccgatgcgg ggcggcgccgg aaacgaagca ctgggttcga agaacggctg cgctgccata 420
tcgtccggag cttccataacc ttctgtcgccg cggaaagagct tgctgttagtc ggccgcccattg 480
acaacctctc agagtgcgt 500

<210> 68

<211> 139

<212> PRT

<213> Mycobacterium tuberculosis

<400> 68

Met Gly Ala Gly Pro Ala Met Gly Ile Gly Gly Val Gly Gly Leu Gly
1 5 10 15

Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly Leu
20 25 30

Gly Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly
35 40 45

Leu Asp Ala Ala Gly Ser Gly Glu Gly Gly Ser Pro Ala Ala Ile Gly
50 55 60

Ile Gly Val Gly
65 70 75 80

Ala Asp Thr Asn Arg Ser Asp Arg Ser Ser Asp Val Gly Gly Gly Val
85 90 95

Trp Pro Leu Gly Phe Gly Arg Phe Ala Asp Ala Gly Ala Gly Gly Asn
100 105 110

Glu Ala Leu Gly Ser Lys Asn Gly Cys Ala Ala Ile Ser Ser Gly Ala
115 120 125

Ser Ile Pro Ser Cys Gly Arg Lys Ser Leu Ser
130 135

<210> 69

<211> 2050

<212> DNA

<213> Mycobacterium tuberculosis

<400> 69

agcgcaactt gagagggttgt catggcggcc gactacgaca agctttccg gccgcacgaa 60
ggtatggaag ctccggacga tatggcagcg cagccgttct tcgaccccgag tgcttcgttt 120
ccgcggcgc cgcacatcgcc aaacctaccg aagcccaacg gccagactcc gccccggacg 180
tccgacgacc tgcggagcg gttcgtgtcg gccccggcc cgccacccccc acccccacct 240
ccgcctccgc caactccgat gccgatcgcc gcaggagagc cgccctcgcc ggaaccggcc 300
gcatctaaac caccacacc ccccatgccc atgcgggac cgaaccggc cccacccaaa 360
ccacccacac ccccatgccc catggcgggaa cccgaaccgg ccccacccaa accacccaca 420
ccatccgatgc ccattggccg acctgcaccc accccaacccg aatcccgatg ggccgggggg 480
agaccaccga caccacaaac gccaaccggg ggcggcagc aaccggaaatc accggcgccc 540
cacgtaccct cgacacggcc acatcaaccc cggcgacccg caccaggcacc gcccggca 600
aagatgccaa tggcgaaacc cccggccgct ccgtccagac cgtctgcgtc cccggggaa 660
ccaccgaccc ggccgtcccc ccaacactcc cgacgtgcgc gccggggta ccgtatcg 720
acagacacccg aacgaaacgt cgggaaaggta gcaactggtc catccatcca ggcggggctg 780
cgggcagagg aagcatccgg cgccgagctc gccccggaa cggggccctc gccaggccgg 840
ttggggccaa cggatcgta tctggctccg cccacccggcc cggcgccgac agaacctccc 900
cccaaggggc cgaagggtgaa gaagggtgaa ccccaac cgaaggccac gaagccggcc 1140
aaagtgggtg cgcagcgcgg ctggcgacat tgggtgcgtc cttgcacgcg aatcaacctg 1200
ggccgtgtcac ccgacgagaa gtacgagctg gacgtgcacg ctcgagtcgg ccccaatccc 1260
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acagcagcgt tggggtcgac gttggctca gtcggccg accggatccct ggctctagac 1380
gcggatccag gcccggaaa cctcgccgat cgggttagggc gacaatcgcc cgcgaccatc 1440
gctgatgtgc ttgcagaaaa agagctgtcg cactacaacg acatccgcgc acacactagc 1500
gtcaatgcgg tcaatctgga agtgctggc gcaccggaaat acagctggc gcageggcgcg 1560

Ser His Gly Pro His Gln Pro Arg Arg Thr Ala Pro Ala Pro Pro Trp
180 185 190

Ala Lys Met Pro Ile Gly Glu Pro Pro Pro Ala Pro Ser Arg Pro Ser
195 200 205

Ala Ser Pro Ala Glu Pro Pro Thr Arg Pro Ala Pro Gln His Ser Arg
210 215 220

Arg Ala Arg Arg Gly His Arg Tyr Arg Thr Asp Thr Glu Arg Asn Val
225 230 235 240

Gly Lys Val Ala Thr Gly Pro Ser Ile Gln Ala Arg Leu Arg Ala Glu
245 250 255

Glu Ala Ser Gly Ala Gln Leu Ala Pro Gly Thr Glu Pro Ser Pro Ala
260 265 270

Pro Leu Gly Gln Pro Arg Ser Tyr Leu Ala Pro Pro Thr Arg Pro Ala
275 280 285

Pro Thr Glu Pro Pro Pro Ser Pro Gln Arg Asn Ser Gly Arg
290 295 300

Arg Ala Glu Arg Arg Val His Pro Asp Leu Ala Ala Gln His Ala Ala
305 310 315 320

Ala Gln Pro Asp Ser Ile Thr Ala Ala Thr Thr Gly Gly Arg Arg Arg
325 330 335

Lys Arg Ala Ala Pro Asp Leu Asp Ala Thr Gln Lys Ser Leu Arg Pro
340 345 350

Ala Ala Lys Gly Pro Lys Val Lys Lys Val Lys Pro Gln Lys Pro Lys
355 360 365

Ala Thr Lys Pro Pro Lys Val Val Ser Gln Arg Gly Trp Arg His Trp
370 375 380

Val His Ala Leu Thr Arg Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys
385 390 395 400

Tyr Glu Leu Asp Leu His Ala Arg Val Arg Arg Asn Pro Arg Gly Ser
405 410 415

Tyr Gln Ile Ala Val Val Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr
420 425 430

Leu Thr Ala Ala Leu Gly Ser Thr	Leu Ala Gln Val Arg Ala Asp Arg		
435	440	445	
Ile Leu Ala Leu Asp Ala Asp Pro	Gly Ala Gly Asn Leu Ala Asp Arg		
450	455	460	
Val Gly Arg Gln Ser Gly Ala Thr Ile Ala Asp Val	Leu Ala Glu Lys		
465	470	475	480
Glu Leu Ser His Tyr Asn Asp Ile Arg Ala His Thr	Ser Val Asn Ala		
485	490	495	
Val Asn Leu Glu Val Leu Pro Ala Pro Glu Tyr Ser	Ser Ala Gln Arg		
500	505	510	
Ala Leu Ser Asp Ala Asp Trp His Phe Ile Ala Asp Pro	Ala Ser Arg		
515	520	525	
Phe Tyr Asn Leu Val Leu Ala Asp Cys Gly Ala Gly	Phe Phe Asp Pro		
530	535	540	
Leu Thr Arg Gly Val Leu Ser Thr Val Ser Gly Val	Val Val Val Ala		
545	550	555	560
Ser Val Ser Ile Asp Gly Ala Gln Gln Ala Ser Val	Ala Leu Asp Trp		
565	570	575	
Leu Arg Asn Asn Gly Tyr Gln Asp Leu Ala Ser Arg	Ala Cys Val Val		
580	585	590	
Ile Asn His Ile Met Pro Gly Glu Pro Asn Val	Ala Val Lys Asp Leu		
595	600	605	
Val Arg His Phe Glu Gln Gln Val Gln Pro	Gly Arg Val Val Val Met		
610	615	620	
Pro Trp Asp Arg His Ile Ala Ala Gly Thr	Glu Ile Ser Leu Asp Leu		
625	630	635	640
Leu Asp Pro Ile Tyr Lys Arg Lys Val	Leu Glu Leu Ala Ala Leu		
645	650	655	
Ser Asp Asp Phe Glu Arg Ala Gly Arg Arg			
660	665		

<211> 1890

<212> DNA

<213> Mycobacterium tuberculosis

<400> 71

gcagcgatga ggaggagcgg cgccaacggc ccgcgcggc gacgatgcaa agcgcgacgaa 60
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ctggaccagg tcggcactgc tgaatcggt gcgtacaaga tgtggctgcc gccgttgacc 180
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cagacgatgg tggatcgcc cggccacaca cactcaccgc gcaacgttca gttctattgc 420
atcgacccatg gtggcggcgg gctgatctat ctgcggaaacc ttccacacgt cgggtgggta 480
gccaatcggt cggagccga caaggtcaac cgggtggcgt cagagatgca agccgtcatg 540
cgcaacggg aaaccaccc caaggaacac cagatggcgt cgatcgggat gtaccggcag 600
ctgcgtgacg atccaagtca acccggttgcg tccgatccat acggcgacgt ctttctgatc 660
atcgacggat ggcccggttt tgtcggcgag ttccccgacc ttgaggggca gttcaagat 720
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gagctgaagt cgcgtgttcg cgactaccc ggcaccaaga tcgagttccg gcttgggtgac 840
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gcagtgtcga tgaaaaagca ccatctgtat atcggcgtgc ccaggttcga cggcgtgcac 960
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ttcattgcccgt gtttagcagg acccgagatc 1890

<210> 72

<211> 591

<212> PRT

<213> Mycobacterium tuberculosis

<400> 72

Met Thr Ala Glu Pro Glu Val Arg Thr Leu Arg Glu Val Val Leu Asp

1

5

10

15

Gln Leu Gly Thr Ala Glu Ser Arg Ala Tyr Lys Met Trp Leu Pro Pro

275

280

285

Arg Phe Asp Gly Val His Ser Ala Asp Asn Leu Val Glu Ala Ile Thr
 290 295 300

Ala Gly Val Thr Gln Ile Ala Ser Gln His Thr Glu Gln Ala Pro Pro
 305 310 315 320

Val Arg Val Leu Pro Glu Arg Ile His Leu His Glu Leu Asp Pro Asn
 325 330 335

Pro Pro Gly Pro Glu Ser Asp Tyr Arg Thr Arg Trp Glu Ile Pro Ile
 340 345 350

Gly Leu Arg Glu Thr Asp Leu Thr Pro Ala His Cys His Met His Thr
 355 360 365

Asn Pro His Leu Leu Ile Phe Gly Ala Ala Lys Ser Gly Lys Thr Thr
 370 375 380

Ile Ala His Ala Ile Ala Arg Ala Ile Cys Ala Arg Asn Ser Pro Gln
 385 390 395 400

Gln Val Arg Phe Met Leu Ala Asp Tyr Arg Ser Gly Leu Leu Asp Ala
 405 410 415

Val Pro Asp Thr His Leu Leu Gly Ala Gly Ala Ile Asn Arg Asn Ser
 420 425 430

Ala Ser Leu Asp Glu Ala Ala Gln Ala Leu Ala Val Asn Leu Lys Lys
 435 440 445

Arg Leu Pro Pro Thr Asp Leu Thr Thr Ala Gln Leu Arg Ser Arg Ser
 450 455 460

Trp Trp Ser Gly Phe Asp Val Val Leu Leu Val Asp Asp Trp His Met
 465 470 475 480

Ile Val Gly Ala Ala Gly Gly Met Pro Pro Met Ala Pro Leu Ala Pro
 485 490 495

Leu Leu Pro Ala Ala Ala Asp Ile Gly Leu His Ile Ile Val Thr Cys
 500 505 510

Gln Met Ser Gln Ala Tyr Lys Ala Thr Met Asp Lys Phe Val Gly Ala
 515 520 525

Ala Phe Gly Ser Gly Ala Pro Thr Met Phe Leu Ser Gly Glu Lys Gln

530

535

540

Glu Phe Pro Ser Ser Glu Phe Lys Val Lys Arg Arg Pro Pro Gly Gln
545 550 555 560

Ala Phe Leu Val Ser Pro Asp Gly Lys Glu Val Ile Gln Ala Pro Tyr
565 570 575

Ile Glu Pro Pro Glu Glu Val Phe Ala Ala Pro Pro Ser Ala Gly
580 585 590

<210> 73

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 73

Asp Pro Val Asp Asp Ala Phe Ile Ala Lys Leu Asn Thr Ala Gly
1 5 10 15

<210> 74

<211> 14

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (14)

<223> Xaa is unknown

<400> 74

Asp Pro Val Asp Ala Ile Ile Asn Leu Asp Asn Tyr Gly Xaa
1 5 10

<210> 75

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (5)

<223> Xaa is unknown

<400> 75

Ala Glu Met Lys Xaa Phe Lys Asn Ala Ile Val Gln Glu Ile Asp
1 5 10 15

<210> 76
<211> 14
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> VARIANT
<222> (3)
<223> Ala is Ala or Gln

<220>
<221> VARIANT
<222> (7)
<223> Thr is Gly or Thr

<220>
<221> UNSURE
<222> (11)
<223> Xaa is unknown

<400> 76
Val Ile Ala Gly Met Val Thr His Ile His Xaa Val Ala Gly
1 5 10

<210> 77
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 77
Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser
1 5 10 15

<210> 78
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 78
Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly
1 5 10 15

<210> 79
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 79
Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met
1 5 10 15

<210> 80
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> VARIANT
<222> (4)
<223> Asp is Asp or Glu

<400> 80
Asp Pro Ala Asp Ala Pro Asp Val Pro Thr Ala Ala Gln Leu Thr
1 5 10 15

<210> 81
<211> 50
<212> PRT
<213> Mycobacterium tuberculosis

<400> 81
Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr
35 40 45

Val Ser
50

<210> 82
<211> 15
<212> PRT

<213> Mycobacterium tuberculosis

<400> 82

Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser
1 5 10 15

<210> 83

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 83

Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln
1 5 10 15

<210> 84

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 84

Thr Thr Ile Val Ala Leu Lys Tyr Pro Gly Gly Val Val Met Ala
1 5 10 15

<210> 85

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (10)

<223> Xaa is unknown

<220>

<221> UNSURE

<222> (15)

<223> Xaa is unknown

<400> 85

Ser Phe Pro Tyr Phe Ile Ser Pro Glu Xaa Ala Met Arg Glu Xaa
1 5 10 15

<210> 86

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 86

Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr

1

5

10

15

<210> 87

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 87

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cggttgtgt acggataca aatacaggga gggagaagt aggcaaatgg aaaaaatgtc 120
acatgatccg atcgctgcgc acattggcac gcaagtgagc gacaacgctc tgcacggcgt 180
gacggccggc tcgacggcgc tgacgtcggt gaccgggctg gttcccgccg gggccatga 240
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tgcatcgccc caagaccagc tccaccgtgc gggcgaagcg gtccaggacg tcgcccgcac 360
ctattcgcaa atcgacgacg ggcgcgcgg cgtttcgcc taataggccc ccaacacatc 420
ggagggagtg atcaccatgc tgtggcacgc 450

<210> 88

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 88

Met Glu Lys Met Ser His Asp Pro Ile Ala Ala Asp Ile Gly Thr Gln

1

5

10

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Val Ser Asp Asn Ala Leu His Gly Val Thr Ala Gly Ser Thr Ala Leu

20

25

30

Thr Ser Val Thr Gly Leu Val Pro Ala Gly Ala Asp Glu Val Ser Ala

35

40

45

Gln Ala Ala Thr Ala Phe Thr Ser Glu Gly Ile Gln Leu Leu Ala Ser

50

55

60

Asn Ala Ser Ala Gln Asp Gln Leu His Arg Ala Gly Glu Ala Val Gln

65

70

75

80

Asp Val Ala Arg Thr Tyr Ser Gln Ile Asp Asp Gly Ala Ala Gly Val

85

90

95

Phe Ala

<210> 89
<211> 460
<212> DNA
<213> Mycobacterium tuberculosis

<400> 89
gcaaccggct tttcgatcatc ctgagacatc agcggcgtgc gggtaaacga cccacctgcg 60
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agcggatggt tcgacagcgg actgggtccg agcaggccca tctgcgcggc ttcctcgctg 180
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ggctgggtca gctgctgcat cgggcccgtc atctcaccca gttggccag ggtctggta 300
gccgcggcg gcaactggcc aaccgggttt gagctgccag gggagggcat tccgaagatc 360
gggttcgtcg tgctctggct cgcgcggga tcaaggatcg acgccatcg ctcgagcttc 420
tcgaaaagcg tgttaaccgc ggtctcgcc tgtagacct 460

<210> 90
<211> 139
<212> PRT
<213> Mycobacterium tuberculosis

<400> 90
Met Arg Val Asn Asp Pro Pro Ala Pro Gly Ser Asp Ser Ala Arg Ser
1 5 10 15
Arg Pro Ala Pro Ala Leu Gly Pro Asp Pro Pro Ala Ser Gly Trp Phe
20 25 30
Asp Ser Gly Leu Val Pro Ser Arg Pro Ile Cys Ala Ala Ser Ser Ser
35 40 45
Ala Gly Leu Pro Pro Pro Val Pro Pro Thr Trp Leu Asn Asn Asp Val
50 55 60
Thr Cys Cys Ser Gly Trp Val Ser Cys Cys Ile Gly Pro Leu Ile Ser
65 70 75 80
Pro Ser Trp Pro Arg Val Trp Val Ala Ala Gly Gly Asn Trp Pro Thr
85 90 95
Gly Val Glu Leu Pro Gly Glu Gly Ile Pro Lys Ile Gly Phe Val Val
100 105 110
Leu Trp Leu Ala Pro Gly Ser Arg Ile Asp Ala Ile Gly Ser Ser Phe
115 120 125

Ser Lys Ser Val Leu Thr Ala Val Ser Ala Trp
130 135

<210> 91
<211> 1200
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 91
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gagctaaata ccgcacggct gatggccggc gcgggtccgg ctccaatgtc tgcggcgccc 120
gcgggatggc agacgctttc ggcggctctg gacgctcagg ccgtcgagtt gaccgcgcgc 180
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acgcccgtatgg tggctctggct acaaaccgcg tcaacacagg ccaagaccgg tgcgatgcag 300
gacgcgcgc aagccgcggc atacacccag gccatggcca cgacgcgcgc gctgcccggag 360
atcgccgcca accacatcac ccaggccgtc cttacggcca ccaacttctt cggtatcaac 420
acgatcccga tcgcgttgac cgagatggat tatttcattcc gtatgtggaa ccaggcagcc 480
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ccgatggcgt cgatccttga tcccggcgcg agccagagca cgacgaacccc gatcttcgga 600
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ctcgcccaac tgggtgagat gagcggcccg atgcagcagc tgaccaggcc gctgcagcag 720
gtgacgtcggt tggcagcca ggtggcgcc accggcgccgc gcaacccagc cgacgaggaa 780
gccgcgcaga tgggcctgtc cggcaccagt cggctgtcga accatccgct ggctgggtgga 840
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<210> 92
<211> 371
<212> PRT
<213> *Mycobacterium tuberculosis*

<400> 92
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Arg Leu Met Ala Gly Ala Gly Pro Ala Pro Met Leu Ala Ala Ala Ala
20 25 30

Gly Trp Gln Thr Leu Ser Ala Ala Leu Asp Ala Gln Ala Val Glu Leu
35 40 45

Thr Ala Arg Leu Asn Ser Leu Gly Glu Ala Trp Thr Gly Gly Gly Ser

50

55

60

Asp Lys Ala Leu Ala Ala Ala Thr Pro Met Val Val Trp Leu Gln Thr
 65 70 75 80

Ala Ser Thr Gln Ala Lys Thr Arg Ala Met Gln Ala Thr Ala Gln Ala
 85 90 95

Ala Ala Tyr Thr Gln Ala Met Ala Thr Thr Pro Ser Leu Pro Glu Ile
 100 105 110

Ala Ala Asn His Ile Thr Gln Ala Val Leu Thr Ala Thr Asn Phe Phe
 115 120 125

Gly Ile Asn Thr Ile Pro Ile Ala Leu Thr Glu Met Asp Tyr Phe Ile
 130 135 140

Arg Met Trp Asn Gln Ala Ala Leu Ala Met Glu Val Tyr Gln Ala Glu
 145 150 155 160

Thr Ala Val Asn Thr Leu Phe Glu Lys Leu Glu Pro Met Ala Ser Ile
 165 170 175

Leu Asp Pro Gly Ala Ser Gln Ser Thr Thr Asn Pro Ile Phe Gly Met
 180 185 190

Pro Ser Pro Gly Ser Ser Thr Pro Val Gly Gln Leu Pro Pro Ala Ala
 195 200 205

Thr Gln Thr Leu Gly Gln Leu Gly Glu Met Ser Gly Pro Met Gln Gln
 210 215 220

Leu Thr Gln Pro Leu Gln Gln Val Thr Ser Leu Phe Ser Gln Val Gly
 225 230 235 240

Gly Thr Gly Gly Asn Pro Ala Asp Glu Glu Ala Ala Gln Met Gly
 245 250 255

Leu Leu Gly Thr Ser Pro Leu Ser Asn His Pro Leu Ala Gly Gly Ser
 260 265 270

Gly Pro Ser Ala Gly Ala Gly Leu Leu Arg Ala Glu Ser Leu Pro Gly
 275 280 285

Ala Gly Gly Ser Leu Thr Arg Thr Pro Leu Met Ser Gln Leu Ile Glu
 290 295 300

Lys Pro Val Ala Pro Ser Val Met Pro Ala Ala Ala Gly Ser Ser

305

310

315

320

Ala Thr Gly Gly Ala Ala Pro Val Gly Ala Gly Ala Met Gly Gln Gly
325 330 335

Ala Gln Ser Gly Gly Ser Thr Arg Pro Gly Leu Val Ala Pro Ala Pro
340 345 350

Leu Ala Gln Glu Arg Glu Glu Asp Asp Glu Asp Asp Trp Asp Glu Glu
355 360 365

Asp Asp Trp
370

<210> 93

<211> 1000

<212> DNA

<213> Mycobacterium tuberculosis

<400> 93

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tgggtgcattt cggtgacgcg aatcaacctt ggctgtcac ccgacgagaa gtacgagctg 180
gacctgcacg ctcgagtcgg ccgcaatccc cgcgggtcgat atcagatcgc cgtcgctgg 240
ctcaaagggtt gggctggcaa aaccacgcgt acagcagcgt tgggtcgac gttggctcag 300
gtgcgggccc accggatcctt ggctctagac gcggatccag ggcggggaaa cctcgccgat 360
cggttagggc gacaatcggg cgcgaccatc gctgtatgtc ttgcagaaaa agagctgtcg 420
cactacaacg acatccgcg acacactagc gtcaatgcgg tcaatctggaa agtgcgtccg 480
gcaccggaat acagctcgcc gcagcgcgcg ctcagcgcacg ccgactggca tttcatcgcc 540
gatcctgcgtt cgagggtttt caacacctgtc ttggctgattt gtggggccgg cttcttcgac 600
ccgctgaccc gcggcgtgct gtccacggcg tccgggtcg tggcgtggc aagtgtctca 660
atcgacggcg cacaacaggc gtccgtcgat ttggactgggt tgcccaacaa cggttaccaa 720
gatttggcga gccgcgcattt cgtggatcatc aatcacatca tgccgggaga acccaatgtc 780
gcagttaaag acctgggtcgat gcatttcgaa cagcaagttt aacccggccg ggtcgtggc 840
atgccgtggg acaggcacat tgccggccgaa accgagattt cactcgactt gctcgaccct 900
atctacaacg gcaaggctt cgaattggcc gcagcgttat ccgacgattt cgagagggtt 960
ggacgtcggtt gagcgcaccc gctgttgcgtt ctggcctac 1000

<210> 94

<211> 308

<212> PRT

<213> Mycobacterium tuberculosis

<400> 94

Met Lys Lys Val Lys Pro Gln Lys Pro Lys Ala Thr Lys Pro Pro Lys

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10

15

Val	Val	Ser	Gln	Arg	Gly	Trp	Arg	His	Trp	Val	His	Ala	Leu	Thr	Arg
20							25								30
Ile	Asn	Leu	Gly	Leu	Ser	Pro	Asp	Glu	Lys	Tyr	Glu	Leu	Asp	Leu	His
35							40								45
Ala	Arg	Val	Arg	Arg	Asn	Pro	Arg	Gly	Ser	Tyr	Gln	Ile	Ala	Val	Val
50							55								60
Gly	Leu	Lys	Gly	Gly	Ala	Gly	Lys	Thr	Thr	Leu	Thr	Ala	Ala	Leu	Gly
65							70								80
Ser	Thr	Leu	Ala	Gln	Val	Arg	Ala	Asp	Arg	Ile	Leu	Ala	Leu	Asp	Ala
85								90							95
Asp	Pro	Gly	Ala	Gly	Asn	Leu	Ala	Asp	Arg	Val	Gly	Arg	Gln	Ser	Gly
100							105								110
Ala	Thr	Ile	Ala	Asp	Val	Leu	Ala	Glu	Lys	Glu	Leu	Ser	His	Tyr	Asn
115							120								125
Asp	Ile	Arg	Ala	His	Thr	Ser	Val	Asn	Ala	Val	Asn	Leu	Glu	Val	Leu
130							135								140
Pro	Ala	Pro	Glu	Tyr	Ser	Ser	Ala	Gln	Arg	Ala	Leu	Ser	Asp	Ala	Asp
145							150								160
Trp	His	Phe	Ile	Ala	Asp	Pro	Ala	Ser	Arg	Phe	Tyr	Asn	Leu	Val	Leu
165								170							175
Ala	Asp	Cys	Gly	Ala	Gly	Phe	Phe	Asp	Pro	Leu	Thr	Arg	Gly	Val	Leu
180							185								190
Ser	Thr	Val	Ser	Gly	Val	Val	Val	Val	Ala	Ser	Val	Ser	Ile	Asp	Gly
195							200								205
Ala	Gln	Gln	Ala	Ser	Val	Ala	Leu	Asp	Trp	Leu	Arg	Asn	Asn	Gly	Tyr
210							215								220
Gln	Asp	Leu	Ala	Ser	Arg	Ala	Cys	Val	Val	Ile	Asn	His	Ile	Met	Pro
225							230								240
Gly	Glu	Pro	Asn	Val	Ala	Val	Lys	Asp	Leu	Val	Arg	His	Phe	Glu	Gln
245								250							255
Gln	Val	Gln	Pro	Gly	Arg	Val	Val	Val	Met	Pro	Trp	Asp	Arg	His	Ile
260							265								270

Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu Leu Asp Pro Ile Tyr Lys
275 280 285

Arg Lys Val Leu Glu Leu Ala Ala Leu Ser Asp Asp Phe Glu Arg
290 295 300

Ala Gly Arg Arg
305

<210> 95
<211> 34
<212> DNA
<213> Mycobacterium tuberculosis

<400> 95
aagagtagat ctatgatggc cgaggatgtt cgcg 34

<210> 96
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 96
cggcgacgac ggatccctacc gcgtcgg 27

<210> 97
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 97
ccttgggaga tctttggacc ccgggttgc 28

<210> 98
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 98
gacgagatct tatgggctta ctgac 25

<210> 99
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 99

ccccccagat ctgcaccacc ggcatcgcg ggc 33

<210> 100
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 100
gcggcggatc cgttgcttag ccgg 24

<210> 101
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 101
ccggctgaga tctatgacag aatacgaagg gc 32

<210> 102
<211> 24
<212> DNA
<213> Mycobacterium tuberculosis

<400> 102
ccccgccagg gaactagagg cgcc 24

<210> 103
<211> 38
<212> DNA
<213> Mycobacterium tuberculosis

<400> 103
ctgcccagat ctaccaccat tgtcgcgtg aaataccc 38

<210> 104
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 104
cgccatggcc ttacgcgcca actcg 25

<210> 105
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 105

ggcggagatc tgtgagttt ccgtatttc tc 32
<210> 106
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 106 25
cgcgtagc catggtagg cgtag
<210> 107
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 107 32
gaggaagatc tatgacaact tcacccgacc cg
<210> 108
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 108 28
catgaagcca tggccgcag gctgcatg
<210> 109
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 109 33
ggccgagatc tgtgacccac tatgacgtcg tcg
<210> 110
<211> 36
<212> DNA
<213> Mycobacterium tuberculosis

<400> 110 36
ggcgccatg gtcagaaatt gatcatgtgg ccaacc
<210> 111
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 111

Mycobacterium tuberculosis

ccggagatc tatggcaaag ctctccaccg acg	33
<210> 112	
<211> 32	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 112	
cgctggcag agctacttga cggtagacggt gg	32
<210> 113	
<211> 36	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 113	
ggcccagatc tatggccatt gaggtttcggt tgttgc	36
<210> 114	
<211> 26	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 114	
cgcgtgttg catggcagcg ctgagc	26
<210> 115	
<211> 24	
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<400> 115	
ggacgttcaa gcgacacatc gccg	24
<210> 116	
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<212> DNA	
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<400> 116	
cagcacgaac gcgcgtcga tggc	24
<210> 117	
<211> 26	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 117	

acagatctgt gacggacatg aaccgg 26

<210> 118
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 118
tttccatgg tcacggggccc ccggtaact 28

<210> 119
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 119
acagatctgt gccccatggca cagata 26

<210> 120
<211> 27
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<213> Mycobacterium tuberculosis

<400> 120
tttaagttc taggcgccca gcgcggc 27

<210> 121
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<212> DNA
<213> Mycobacterium tuberculosis

<400> 121
acagatctgc gcatgcggat ccgttgt 26

<210> 122
<211> 28
<212> DNA
<213> Mycobacterium tuberculosis

<400> 122
tttccatgg tcatccggcg tgatcgag 28

<210> 123
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 123

acagatctgt aatggcagac tgtgat

26

<210> 124

<211> 28

<212> DNA

<213> Mycobacterium tuberculosis

<400> 124

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28

<210> 125

<211> 26

<212> DNA

<213> Mycobacterium tuberculosis

<400> 125

acagatctgc cggctacccc ggtgcc

26

<210> 126

<211> 28

<212> DNA

<213> Mycobacterium tuberculosis

<400> 126

ttttccatgg ctattgcagc tttccggc

28

<210> 127

<211> 50

<212> PRT

<213> Mycobacterium tuberculosis

<400> 127

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val

1

5

10

15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu

20

25

30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr

35

40

45

Val Ser

50

<210> 128

<211> 49

<212> PRT

<213> Mycobacterium tuberculosis

<400> 128

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr Val
35 40 45

Ser

<210> 129

<211> 50

<212> PRT

<213> Mycobacterium tuberculosis

<400> 129

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu
20 25 30

Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr
35 40 45

Val Ser

50

<210> 130

<211> 33

<212> DNA

<213> Mycobacterium tuberculosis

<400> 130

ccggggagatc tatggcaaag ctctccacccg acg 33

<210> 131

<211> 32

<212> DNA

<213> Mycobacterium tuberculosis

<400> 131
cgctggcag agctacttga cggtgacggg gg 32

<210> 132
<211> 36
<212> DNA
<213> Mycobacterium tuberculosis

<400> 132
ggcgccggca agcttgccat gacagagcag cagtgg 36

<210> 133
<211> 26
<212> DNA
<213> Mycobacterium tuberculosis

<400> 133
cgaactcgcc ggatcccgta tttcgc 26

<210> 134
<211> 32
<212> DNA
<213> Mycobacterium tuberculosis

<400> 134
ggcaaccgcg agattttct cccggccggg gc 32

<210> 135
<211> 27
<212> DNA
<213> Mycobacterium tuberculosis

<400> 135
ggcaagcttg ccggcgccata acgaact 27

<210> 136
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 136
ggaccaggat ctatgacaga gcagcagtgg 30

<210> 137
<211> 47
<212> DNA
<213> Mycobacterium tuberculosis

<400> 137
 cccggcagccc cggccgggag aaaagctttg cgaacatccc agtgacg 47

<210> 138
 <211> 44
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 138
 gttcgcaaag cttttctccc ggccggggct gccggtcgag tacc 44

<210> 139
 <211> 20
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 139
 ccttcggtgg atcccgtag 20

<210> 140
 <211> 450
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 140
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 ggccagcatg aacgtcaccg tatccattcc gaccatcctg cggccccaca ccggcggcca 120
 gaagagtgtc tcggccagcg gcgatacctt gggtgccgtc atcagcgacc tggaggccaa 180
 ctattcgggc atttccgagc gcctgatgaa cccgtcttcc ccaggttaagt tgccaccgctt 240
 cgtgaacatc tacgtcaacg acgaggacgt gcggttctcc ggcggcttgg ccaccgcgat 300
 cgctgacggt gactcggtca ccattccccc cgccgtggcc ggtgggtgag cggagcacat 360
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 attgtcgcca cgctggatg acgggcgaga 450

<210> 141
 <211> 93
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 141
 Met Asn Val Thr Val Ser Ile Pro Thr Ile Leu Arg Pro His Thr Gly
 1 5 10 15

Gly Gln Lys Ser Val Ser Ala Ser Gly Asp Thr Leu Gly Ala Val Ile
 20 25 30

Ser Asp Leu Glu Ala Asn Tyr Ser Gly Ile Ser Glu Arg Leu Met Asp
 35 40 45

Pro Ser Ser Pro Gly Lys Leu His Arg Phe Val Asn Ile Tyr Val Asn
50 55 60

Asp Glu Asp Val Arg Phe Ser Gly Gly Leu Ala Thr Ala Ile Ala Asp
65 70 75 80

Gly Asp Ser Val Thr Ile Leu Pro Ala Val Ala Gly Gly
85 90

<210> 142

<211> 480

<212> DNA

<213> Mycobacterium tuberculosis

<400> 142

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atgcgggaca tggcgggccc ttgtttaggtg cacgccccaga cggtgaggaa cgaggctcg 180
cgatgtgggg cgtccgcgca aaacatctcg ggccgggct ggagtggcat ggccgaggcg 240
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cacgggggtgc gtgacgggct ggttcgcgac gccaacaact acgagcagca agagcaggcc 360
tcccagcaga tcctcagcag ctaacgtcag ccgctgcagc acaaatactt tacaagcgaa 420
ggagaacagg ttgcgtgacc atcaactatc agttcggtga tgtcgacgct catggcgcca 480

<210> 143

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 143

Met Ala Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu

85

90

95

Ser Ser

<210> 144

<211> 940

<212> DNA

<213> Mycobacterium tuberculosis

<400> 144

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tccgccacct aacgaaagga tcatcgatgcc caagagaagc gaatacaggc aaggcacgcc 120
gaactgggtc gacccatcaga ccaccgatca gtccggccgc aaaaagttct acacatcggt 180
gttcggctgg ggttacgacg acaacccggc ccccgagggc ggtggggctt attccatggc 240
cacgctgaac ggcgaagccg tggccgcatt cgccaccatg ccccccgggtg cacccggaggg 300
gatgcccggc atcttgcaca ccttatatcgc ggtggacgc gtcgatgcgg tggtggacaa 360
ggtggtgccc gggggcgggc aggtgatgat gccggccttc gacatcgccg atgcccggccg 420
gatgtcggtc atcaccgcgc cgaccggcgc tgccgtggcc ctatggcagg ccaatcgcc 480
catcgagcg acgttggtca acgagacggg cacgctcatc tggaacgaac tgctcacgg 540
caagccggat ttggcgctag cggttctacga ggctgtggtt ggcttcaccc actcgagcat 600
ggagatagct gccccccaga actatcggt gctcaaggcc ggcgacgcgg aagtccggcgg 660
ctgtatggaa ccgcgcgtgc ccggcgtgcc gaatcattgg cacgtctact ttgcgggtgga 720
tgacgcccac gccacggcgg ccaaagccgc cgccagggc ggccaggtca ttgcggaaacc 780
ggctgacatt ccgtcggtgg gccgggttcgc cgtgttgc gatccgcagg gcgcgatctt 840
cagtgtgtg aagccgcac cgccagcaata gggagcatcc cggcagggcc cgcggccgg 900
cagattcgga gaatgctaga agctgccgccc ggcggccggc 940

<210> 145

<211> 261

<212> PRT

<213> Mycobacterium tuberculosis

<400> 145

Met Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp

1

5

10

15

Leu Gln Thr Thr Asp Gln Ser Ala Ala Lys Lys Phe Tyr Thr Ser Leu

20

25

30

Phe Gly Trp Gly Tyr Asp Asp Asn Pro Val Pro Gly Gly Gly Val

35

40

45

Tyr Ser Met Ala Thr Leu Asn Gly Glu Ala Val Ala Ala Ile Ala Pro

50

55

60

Met Pro Pro Gly Ala Pro Glu Gly Met Pro Pro Ile Trp Asn Thr Tyr

65	70	75	80
Ile Ala Val Asp Asp Val Asp Ala Val Val Asp Lys Val Val Pro Gly			
85	90		95
Gly Gly Gln Val Met Met Pro Ala Phe Asp Ile Gly Asp Ala Gly Arg			
100	105		110
Met Ser Phe Ile Thr Asp Pro Thr Gly Ala Ala Val Gly Leu Trp Gln			
115	120		125
Ala Asn Arg His Ile Gly Ala Thr Leu Val Asn Glu Thr Gly Thr Leu			
130	135		140
Ile Trp Asn Glu Leu Leu Thr Asp Lys Pro Asp Leu Ala Leu Ala Phe			
145	150	155	160
Tyr Glu Ala Val Val Gly Leu Thr His Ser Ser Met Glu Ile Ala Ala			
165	170		175
Gly Gln Asn Tyr Arg Val Leu Lys Ala Gly Asp Ala Glu Val Gly Gly			
180	185		190
Cys Met Glu Pro Pro Met Pro Gly Val Pro Asn His Trp His Val Tyr			
195	200	205	
Phe Ala Val Asp Asp Ala Asp Ala Thr Ala Ala Lys Ala Ala Ala Ala			
210	215	220	
Gly Gly Gln Val Ile Ala Glu Pro Ala Asp Ile Pro Ser Val Gly Arg			
225	230	235	240
Phe Ala Val Leu Ser Asp Pro Gln Gly Ala Ile Phe Ser Val Leu Lys			
245	250		255
Pro Ala Pro Gln Gln			
260			

<210> 146
<211> 280
<212> DNA
<213> Mycobacterium tuberculosis

<400> 146
ccgaaaggcg gtgcacgc cccagaagaa aaggaaagat cgagaaatgc cacagggAAC 60
tgtgaagtgg ttcaacgcgg agaagggtt cggctttatc gcccccaag acggttccgc 120
ggatgtattt gtccactaca cggagatcca gggAACGGGC ttccgcaccc ttgaagaaaa 180

ccagaaggc gagttcgaga tcggccacag ccctaaggc ccccaggcca ccggagtccg 240
ctcgctctga gttacccccc cgagcagacg caaaaagccc 280

<210> 147

<211> 67

<212> PRT

<213> Mycobacterium tuberculosis

<400> 147

Met Pro Gln Gly Thr Val Lys Trp Phe Asn Ala Glu Lys Gly Phe Gly
1 5 10 15

Phe Ile Ala Pro Glu Asp Gly Ser Ala Asp Val Phe Val His Tyr Thr
20 25 30

Glu Ile Gln Gly Thr Gly Phe Arg Thr Leu Glu Glu Asn Gln Lys Val
35 40 45

Glu Phe Glu Ile Gly His Ser Pro Lys Gly Pro Gln Ala Thr Gly Val
50 55 60

Arg Ser Leu

65

<210> 148

<211> 540

<212> DNA

<213> Mycobacterium tuberculosis

<400> 148

atcggtcgat atcgagaacc ccggcccgta tcagaacqcg ccagagcgca aaccttata 60
acttcgtgtc ccaaattgtga cgaccatggc ccaagggttcc tgagatgaac ctacggcgcc 120
atcagaccct gacgctgcga ctgctggcg catccgcggg cattctcagc gccgcggct 180
tcgccccggcc agcacaggca aaccccgctcg acgacgcgtt catcgccgcg ctgaacaatg 240
ccggcgtcaa ctacggcgat ccggcgtcgacg ccaaagcgct gggtcagtcc gtctgcccga 300
tcctggccga gcccggcgaa tcgtttaaca ccgcggtagc cagcgttgtg gcgcgcgccc 360
aaggcatgtc ccaggacatg ggcacaaacct tcaccagtat cgcgatttcg atgtactgcc 420
cctcggtgtat ggcacacgtc gccacgcggca acctgcggc cctgcccagac atgccggggc 480
tgcccggtgc cttaggcgtgc gcggctcta gccggccct aacggatcga tcgtggatgc 540

<210> 149

<211> 129

<212> PRT

<213> Mycobacterium tuberculosis

<400> 149

Met Asn Leu Arg Arg His Gln Thr Leu Thr Leu Arg Leu Leu Ala Ala

1

5

10

15

Ser Ala Gly Ile Leu Ser Ala Ala Ala Phe Ala Ala Pro Ala Gln Ala
20 25 30

Asn Pro Val Asp Asp Ala Phe Ile Ala Ala Leu Asn Asn Ala Gly Val
35 40 45

Asn Tyr Gly Asp Pro Val Asp Ala Lys Ala Leu Gly Gln Ser Val Cys
50 55 60

Pro Ile Leu Ala Glu Pro Gly Gly Ser Phe Asn Thr Ala Val Ala Ser
65 70 75 80

Val Val Ala Arg Ala Gln Gly Met Ser Gln Asp Met Ala Gln Thr Phe
85 90 95

Thr Ser Ile Ala Ile Ser Met Tyr Cys Pro Ser Val Met Ala Asp Val
100 105 110

Ala Ser Gly Asn Leu Pro Ala Leu Pro Asp Met Pro Gly Leu Pro Gly
115 120 125

Ser

<210> 150

<211> 400

<212> DNA

<213> Mycobacterium tuberculosis

<400> 150

atagtttggg gaagggtgtcc ataaatgagg ctgtcggtga ccgcatttag cgccgggtgtta 60
ggcgccgtgg caatgtcggt gaccgtcggg gccgggggtcg cctccgcaga tcccggtggac 120
gcgggtcatta acaccacactg caattacggg caggttagtag ctgcgcgtcaaa cgcgacggat 180
ccggggggctg ccgcacagtt caacgcctca ccgggtggcgc agtcctatatt gcgcatttc 240
ctcgccgcac cgccacactca gcgcgtgcc atggccgcgc aattgcaagc tgtgcccgggg 300
gcggcacagt acatggcct tgtcgagtcg gttgccggct cctgcaacaa ctattaagcc 360
catgcggggcc ccatccccgcg acccggcatc gtcgcccgggg 400

<210> 151

<211> 110

<212> PRT

<213> Mycobacterium tuberculosis

<400> 151

Met Arg Leu Ser Leu Thr Ala Leu Ser Ala Gly Val Gly Ala Val Ala

1

5

10

15

Met Ser Leu Thr Val Gly Ala Gly Val Ala Ser Ala Asp Pro Val Asp
 20 25 30

Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val Val Ala Ala Leu
 35 40 45

Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn Ala Ser Pro Val
 50 55 60

Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro Pro Pro Gln Arg
 65 70 75 80

Ala Ala Met Ala Ala Gln Leu Gln Ala Val Pro Gly Ala Ala Gln Tyr
 85 90 95

Ile Gly Leu Val Glu Ser Val Ala Gly Ser Cys Asn Asn Tyr
 100 105 110

<210> 152

<211> 990

<212> DNA

<213> Mycobacterium tuberculosis

<400> 152

aatagtaata tcgctgtgcg gttcaaaac gtgtgaccga ggttccgcag tcgagcgctg 60
 cggggccgcct tcgaggagga cgaaccacag tcatgacgaa catcgtggtc ctgatcaagc 120
 aggtcccaga tacctggtcg gagcgcaagc tgaccgacgg cgatttcacg ctggaccgcg 180
 aggccgcccga cgcgggtgctg gacgagatca acgagcgccg cgtggaggaa gcgcctacaga 240
 ttccggagaa agaggccgc gacggcatcg aagggtcggt aaccgtgctg acggcgccc 300
 ccgagcgccg caccgaggcg atccgcaagg cgctgtcgat gggtgccgac aaggccgtcc 360
 acctaagga cgacggcatg cacggctcgg acgtcatcca aaccgggtgg gctttggccg 420
 gcgcgttggg caccatcgag ggcaccgagc tggtgatcg aggcaaccaa tcgaccgacg 480
 gggtggccgg tgcgggtgccg gccatcatcg ccgagttaccc gggcctgccg cagctcaccc 540
 acctgcgcaa agtgtcgatc gagggcggca agatcaccgg cgagcgtgag accgatgagg 600
 gcgtattcac cctcgaggcc acgctgccc cggtgatcg cgtgaacgag aagatcaacg 660
 agccgcgtt cccgtcccttc aaaggcatca tggccgccaa gaagaaggaa gttaccgtgc 720
 tgaccctggc cgagatcggt gtcgagagcg acgaggtggg gctggccaa gccggatcca 780
 ccgtgctggc gtcgacgccc aaaccggcca agactgccc ggagaaggtc accgacgagg 840
 gtgaaggccg caaccagatc gtgcagtacc tggttgcccc gaaaatcatc taagacatac 900
 gcacctccca aagacgagag cgatataacc catggctgaa gtactggtgc tcgttgagca 960
 cgctgaaggc gcgttaaaga aggtcagcgc 990

<210> 153

<211> 266

<212> PRT

<213> Mycobacterium tuberculosis

<400> 153

Met Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser
1 5 10 15

Glu Arg Lys Leu Thr Asp Gly Asp Phe Thr Leu Asp Arg Glu Ala Ala
20 25 30

Asp Ala Val Leu Asp Glu Ile Asn Glu Arg Ala Val Glu Glu Ala Leu
35 40 45

Gln Ile Arg Glu Lys Glu Ala Ala Asp Gly Ile Glu Gly Ser Val Thr
50 55 60

Val Leu Thr Ala Gly Pro Glu Arg Ala Thr Glu Ala Ile Arg Lys Ala
65 70 75 80

Leu Ser Met Gly Ala Asp Lys Ala Val His Leu Lys Asp Asp Gly Met
85 90 95

His Gly Ser Asp Val Ile Gln Thr Gly Trp Ala Leu Ala Arg Ala Leu
100 105 110

Gly Thr Ile Glu Gly Thr Glu Leu Val Ile Ala Gly Asn Glu Ser Thr
115 120 125

Asp Gly Val Gly Gly Ala Val Pro Ala Ile Ile Ala Glu Tyr Leu Gly
130 135 140

Leu Pro Gln Leu Thr His Leu Arg Lys Val Ser Ile Glu Gly Gly Lys
145 150 155 160

Ile Thr Gly Glu Arg Glu Thr Asp Glu Gly Val Phe Thr Leu Glu Ala
165 170 175

Thr Leu Pro Ala Val Ile Ser Val Asn Glu Lys Ile Asn Glu Pro Arg
180 185 190

Phe Pro Ser Phe Lys Gly Ile Met Ala Ala Lys Lys Lys Glu Val Thr
195 200 205

Val Leu Thr Leu Ala Glu Ile Gly Val Glu Ser Asp Glu Val Gly Leu
210 215 220

Ala Asn Ala Gly Ser Thr Val Leu Ala Ser Thr Pro Lys Pro Ala Lys
225 230 235 240

Thr Ala Gly Glu Lys Val Thr Asp Glu Gly Glu Gly Asn Gln Ile
245 250 255

Val Gln Tyr Leu Val Ala Gln Lys Ile Ile
260 265

<210> 154
<211> 25
<212> DNA
<213> Mycobacterium tuberculosis

<400> 154
ctgagatcta tgaacctacg gcgcc 25

<210> 155
<211> 35
<212> DNA
<213> Mycobacterium tuberculosis

<400> 155
ctccccatggc accctaggac ccgggcagcc ccggc 35

<210> 156
<211> 29
<212> DNA
<213> Mycobacterium tuberculosis

<400> 156
ctgagatcta tgaggctgtc gttgaccgc 29

<210> 157
<211> 30
<212> DNA
<213> Mycobacterium tuberculosis

<400> 157
ctccccgggc ttaatagttg ttgcaggagc 30

<210> 158
<211> 33
<212> DNA
<213> Mycobacterium tuberculosis

<400> 158
gcttagatct atgattttct gggcaaccag gta 33

<210> 159

<211> 30
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 159
gcttccatgg gcgaggcaca ggcgtggaa 30

<210> 160
<211> 30
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 160
ctgagatcta gaatgccaca ggaaactgtg 30

<210> 161
<211> 30
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 161
tctcccgaaa gtaactcaga gcgagcggac 30

<210> 162
<211> 27
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 162
ctgagatcta tgaacgtcac cgtatcc 27

<210> 163
<211> 27
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 163
tctcccgaaa ctcacccacc ggccacg 27

<210> 164
<211> 30
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 164
ctgagatcta tggcaacacg ttttatgacg 30

<210> 165

<210> 170
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> VARIANT
<222> (1)
<223> Thr could also be Ala

<400> 170
Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala Gly
1 5 10 15

<210> 171
<211> 15
<212> PRT
<213> Mycobacterium tuberculosis

<400> 171
Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp
1 5 10 15

<210> 172
<211> 404
<212> PRT
<213> Mycobacterium tuberculosis

<400> 172
Met Ala Thr Val Asn Arg Ser Arg His His His His His His His
1 5 10 15

Ile Glu Gly Arg Ser Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu
20 25 30

Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln
35 40 45

Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp Gly Leu Arg
50 55 60

Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe Glu
65 70 75 80

Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly Gln
85 90 95

Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala Gly
 100 105 110

Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro Gln
 115 120 125

Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala Ile
 130 135 140

Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr His
 145 150 155 160

Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp Pro
 165 170 175

Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp Ala
 180 185 190

Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro Ala
 195 200 205

Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala Asn
 210 215 220

Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu Leu
 225 230 235 240

Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg Ser
 245 250 255

Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly His Asn
 260 265 270

Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr Trp
 275 280 285

Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu Gly
 290 295 300

Ala Gly Lys Leu Ala Met Thr Glu Gln Gln Trp Asn Phe Ala Gly Ile
 305 310 315 320

Glu Ala Ala Ala Ser Ala Ile Gln Gly Asn Val Thr Ser Ile His Ser
 325 330 335

Leu Leu Asp Glu Gly Lys Gln Ser Leu Thr Lys Leu Ala Ala Ala Trp
 340 345 350

145 150 155 160
Arg Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe
165 170 175

Glu Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly
180 185 190

Gln Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala
195 200 205

Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro
210 215 220

Gln Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala
225 230 235 240

Ile Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr
245 250 255

His Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp
260 265 270

Pro Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp
275 280 285

Ala Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro
290 295 300

Ala Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala
305 310 315 320

Asn Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu
325 330 335

Leu Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg
340 345 350

Ser Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly Gly His
355 360 365

Asn Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr
370 375 380

Trp Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu
385 390 395 400

Gly Ala Gly

<210> 174
 <211> 291
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 174
 atgtcgacataatccggcg atgatggctc atgccggga catggccgt 60
 tatgcggca cgctgcagag cttggggcc gatatcgcca gtgagcaggc cgtgtgtcc 120
 agtgcttgc agggtatac cgggatcacg tattcagggtt ggcagaccca gtgaaaccag 180
 gccccttagagg atctggtgcg ggcctatcatcg tcgatgtctg gcacccatga gtccaaacacc 240
 atggcgatgt tggctcgaga tggggccgaa gcccggcaagt gggggccgcta g 291

<210> 175
 <211> 96
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 175
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Met Ala His Ala Gly
 1 5 10 15

Asp	Met	Ala	Gly	Tyr	Ala	Gly	Thr	Leu	Gln	Ser	Leu	Gly	Ala	Asp	Ile
	20				25							30			

Ala	Ser	Glu	Gln	Ala	Val	Leu	Ser	Ser	Ala	Trp	Gln	Gly	Asp	Thr	Gly
	35					40						45			

Ile	Thr	Tyr	Gln	Gly	Trp	Gln	Thr	Trp	Asn	Gln	Ala	Leu	Glu	Asp	
	50				55					60					

Leu	Val	Arg	Ala	Tyr	Gln	Ser	Met	Ser	Gly	Thr	His	Glu	Ser	Asn	Thr
	65				70				75			80			

Met	Ala	Met	Leu	Ala	Arg	Asp	Gly	Ala	Glu	Ala	Lys	Trp	Gly	Gly	
	85					90						95			

<210> 176
 <211> 363
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 176

gtgtcgacaga gtatgtacag ctacccggcg atgacggcca atgtcgagaa catggccggt 60
tatacgggca cgacgcagag cttgggggcc gatatcgcca gtgagcgcac cgccgcgtcg 120
cgtgcttgcc aaggatgatct cgggatgagt catcaggact ggcaggccca gtggaatcag 180
gccatggagg ctctcgccg ggcctaccgt cggtgccggc gagcactacg ccagatcggt 240
gtgctggaaa ggccggtagg cgattcgta gactgcggaa cgatttaggt ggggtcggtc 300
cggggtcggt ggctggaccc ggcgcattgcg ggtccagcca cggccgcga cgccggagac 360
taa 363

<210> 177

<211> 120

<212> PRT

<213> Mycobacterium tuberculosis

<400> 177

Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly

1 5 10 15

Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile

20 25 30

Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly

35 40 45

Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala

50 55 60

Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly

65 70 75 80

Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg

85 90 95

Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro

100 105 110

Ala Thr Ala Ala Asp Ala Gly Asp

115 120

<210> 178

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 178

atggcctcgc gtttatgac ggatccgcac gcgatgcggg acatggcggg ccgttttag 60
gtgcacgccc agacggtgaa ggacgaggct cggccggatgt gggcgccgc gcaaaacatc 120

tcgggcgcgg gctggagtgg catggccgag gcgacctcgc tagacaccat gacccagatg 180
aatcaggcgt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgaaca gcaagagcag gcctcccagc agatcctcag cagctga 297

<210> 179

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 179

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 180

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 180

atggcctcac gtttatgac ggatccgcac gcgatgcggg acatggcgaa ccgtttttag 60
gtgcacgccc agacgggtgaa ggacgaggct cgccggatgt gggcgtccgc gcaaaacatt 120
tccgggtgcgg gctggagtgg catggccgag gcgacctcgc tagacaccat ggcccaatgg 180
aatcaggcgt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgagca gcaagagcag gcctcccagc agatcctcag cagctaa 297

<210> 181

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 181

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 182

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 182

atggcctcac gtttatgac ggatccgcat gcgatgcggg acatggcgaa ccgttttag 60
gtgcacgccc agacggtgga ggacgaggct cgccggatgt gggcgtcgc gcaaaaacatt 120
tccgggtgcgg gctggagtgg catggccag ggcacccgc tagacaccat gacctagatg 180
aatcaggcgt ttcgcaacat cgtgaacatg ctgcacgggg tgcgtgacgg gctggttcgc 240
gacgccaaca actacgaaca gcaagagcag gcctcccage agatcctgag cagctag 297

<210> 183

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 183

Met Ala Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 184

<211> 297

<212> DNA

<213> Mycobacterium tuberculosis

<400> 184

atgacctcgc gtttatgac ggatccgcac gcgcgtcgaa acatggcgaa ccgtttttag 60
gtgcacgccc agacggtgaa ggacgagact cgccggatgt gggcgtccgc gcaaaacatt 120
tccggcgccgg gctggagtgg catggccag gcgcacccgc tagacaccat gaccaggatg 180
aatcaggcgat ttcgcaacat cgtgaacatg ctgcacgggg tgctgtgacgg gctggttcgc 240
gacgccaaca actacgaaca gcaagagcag gcctcccaagc agatcctcag cagctga 297

<210> 185

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 185

Met Thr Ser Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
1 5 10 15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
20 25 30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
35 40 45

Ala Glu Ala Thr Ser Leu Asp Thr Met Thr Gln Met Asn Gln Ala Phe
50 55 60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
65 70 75 80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
85 90 95

Ser Ser

<210> 186

<211> 20

<212> DNA

<213> Mycobacterium tuberculosis

<400> 186

ggaataaaaa ggggtttgtg

20

<210> 187

<211> 20

<212> DNA

<213> Mycobacterium tuberculosis

<400> 187

gaccacgccc gcgcgtgtg

20

<210> 188

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 188

gcaacaccccg ggatgtcgca gattatg

27

<210> 189

<211> 30

<212> DNA

<213> Mycobacterium tuberculosis

<400> 189

ctaagcttgg atccctagcc gccccacttg

30

<210> 190

<211> 22

<212> DNA

<213> Mycobacterium tuberculosis

<400> 190

aatatttga aaggattcg tg

22

<210> 191
<211> 30
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 191
ctactaagct tggatcctta gtctccggcg

30

<210> 192
<211> 27
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 192
gcaacaccccg gggtgtcgca gagtatg

27

<210> 193
<211> 30
<212> DNA
<213> *Mycobacterium tuberculosis*

<400> 193
ctactaagct tggatcctta gtctccggcg

30

SEQUENCE LISTING

83

<110> Statens Serum Institut
5 <120> M. tuberculosis antigens

<130> 26166

10 <160> 64

<170> FastSEQ for Windows Version 3.0

15 <210> 194
<211> 381
<212> DNA
<213> Mycobacterium tuberculosis

20 <220>
<221> CDS
<222> (91) ... (378)

<400> 194
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25 atcgaaccct gctgaccgag aggacttgtg atg tcg caa atc atg tac aac tac
Met Ser Gln Ile Met Tyr Asn Tyr
1 5

ccc gcg atg ttg ggt cac gcc ggg gat atg gcc gga tat gcc ggc acg
30 Pro Ala Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr
10 15 20

ctg cag agc ttg ggt gcc gag atc gcc gtg gag cag gcc gcg ttg cag
Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln Ala Ala Leu Gln
35 25 30 35 40

agt gcg tgg cag ggc gat acc ggg atc acg tat cag gcg tgg cag gca
Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Ala Trp Gln Ala
45 45 50 55

cag tgg aac cag gcc atg gaa gat ttg gtg cggtt ggc tat cat gcg atg
Gln Trp Asn Gln Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met
60 65 70

45 tcc agc acc cat gaa gcc aac acc atg gcg atg atg gcc cgc gac acc
Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg Asp Thr
75 80 85

50 gcc gaa gcc gcc aaa tgg ggc ggc tag
Ala Glu Ala Ala Lys Trp Gly Gly
90 95

55 <210> 195
<211> 96
<212> PRT

2 84

<213> Mycobacterium

tuberculosis

<400> 195

Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
5 1 5 10 15
Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile
20 25 30
Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp Thr Gly
35 40 45
10 Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp
50 55 60
Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His Glu Ala Asn Thr
65 70 75 80
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
15 85 90 95

<210> 196

<211> 363

<212> DNA

20 <213> Mycobacterium tuberculosis

<220>

<221> CDS

<222> (1)...(360)

25 <400> 196
gtg tcg cag agt atg tac agc tac ccg gcg atg acg gcc aat gtc gga 48
Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15
30 gac atg gcc ggt tat acg ggc acg acg cag agc ttg ggg gcc gat atc 96
Asp Met Ala Gly Tyr Thr Gly Thr Gln Ser Leu Gly Ala Asp Ile
20 25 30
35 gcc agt gag cgc acc gcg ccg tcg cgt gct tgc caa ggt gat ctc ggg 144
Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly
35 40 45
40 atg agt cat cag gac tgg cag gcc cag tgg aat cag gcc atg gag gct 192
Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala
50 55 60
45 ctc gcg cgg gcc tac cgt cgg tgc cgg cga gca cta cgc cag atc ggg 240
Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly
65 70 75 80
50 gtg ctg gaa agg ccg gta ggc gat tcg tca gac tgc gga acg att agg 288
Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
85 90 95
55 gtg ggg tcg ttc cgg ggt cgg tgg ctg gac ccg cgc cat gcg ggt cca 336
Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro
100 105 110
55 gcc acg gcc gcc gac gcc gga gac taa 363
Ala Thr Ala Ala Asp Ala Gly Asp

305

115

120

5 <210> 197
<211> 120
<212> PRT
<213> Mycobacterium tuberculosis

10 <400> 197
Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15
Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile
20 25 30
Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp Leu Gly
35 40 45
Met Ser His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala
50 55 60
Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly
65 70 75 80
20 Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
85 90 95
Val Gly Ser Phe Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro
100 105 110
Ala Thr Ala Ala Asp Ala Gly Asp
25 115 120

30 <210> 198
<211> 291
<212> DNA
<213> Mycobacterium tuberculosis

35 <220>
<221> CDS
<222> (1)...(288)

40 <400> 198
atg tcg cag att atg tac aac tat ccg gcg atg atg gct cat gcc ggg 48
Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Met Ala His Ala Gly
1 5 10 15

45 gac atg gcc ggt tat gcg ggc acg ctg cag agc ttg ggg gcc gat atc 96
Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile
20 25 30

50 gcc agt gag cag gcc gtg ctg tcc agt gct tgg cag ggt gat acc ggg 144
Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp Thr Gly
35 40 45

55 atc acg tat cag ggc tgg cag acc cag tgg aac cag gcc cta gag gat 192
Ile Thr Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp
50 55 60

55 ctg gtg cgg gcc tat cag tcg atg tct ggc acc cat gag tcc aac acc 240
Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His Glu Ser Asn Thr
65 70 75 80

287

<210> 202
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

5 <220>
<221> CDS
<222> (1)...(60)

10 <400> 202
atg atg gct cat gcc ggg gac atg gcc ggt tat gcg ggc acg ctg cag 48
Met Met Ala His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln
1 5 10 15

15 agc ttg ggg gcc 60
Ser Leu Gly Ala
20

20 <210> 203
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

25 <400> 203
Met Met Ala His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln 5
1 5 10 15
Ser Leu Gly Ala
20

30 <210> 204
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

35 <220>
<221> CDS
<222> (1)...(60)

40 <400> 204
tat gcg ggc acg ctg cag agc ttg ggg gcc gat atc gcc agt gag cag 48
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Gln
1 5 10 15

45 gcc gtg ctg tcc 60
Ala Val Leu Ser
20

50 <210> 205
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

55 <400> 205
Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Gln

100

1	5	10	15	
---	---	----	----	--

Ala Val Leu Ser
20

5 <210> 206
 <211> 60
 <212> DNA
 <213> Mycobacterium tuberculosis

10 <220>
 <221> CDS
 <222> (1) ... (60)

15 <400> 206
 gat atc gcc agt gag cag gcc gtg ctg tcc agt gct tgg cag ggt gat 48
 Asp Ile Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp
 1 5 10 15

20 acc ggg atc acg 60
 Thr Gly Ile Thr
 20

25 <210> 207
 <211> 20
 <212> PRT
 <213> Mycobacterium tuberculosis

30 <400> 207
 Asp Ile Ala Ser Glu Gln Ala Val Leu Ser Ser Ala Trp Gln Gly Asp
 1 5 10 15
 Thr Gly Ile Thr
 20

35 <210> 208
 <211> 60
 <212> DNA
 <213> Mycobacterium tuberculosis

40 <220>
 <221> CDS
 <222> (1) ... (60)

45 <400> 208
 agt gct tgg cag ggt gat acc ggg atc acg tat cag ggc tgg cag acc 48
 Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Gly Trp Gln Thr
 1 5 10 15

50 cag tgg aac cag 60
 Gln Trp Asn Gln
 20

55 <210> 209
 <211> 20
 <212> PRT

X89

<213> Mycobacterium

tuberculosis

<400> 209

Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Gly Trp Gln Thr
5 1 5 10 15
Gln Trp Asn Gln
20

<210> 210

10 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

15 <221> CDS
<222> (1)...(60)

<400> 210

20 tat cag ggc tgg cag acc cag tgg aac cag gcc cta gag gat ctg gtg 48
Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp Leu Val
1 5 10 15

cgg gcc tat cag
Arg Ala Tyr Gln

60

25 20

<210> 211

30 <211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 211

35 Tyr Gln Gly Trp Gln Thr Gln Trp Asn Gln Ala Leu Glu Asp Leu Val 48
1 5 10 15
Arg Ala Tyr Gln
20

<210> 212

40 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

45 <221> CDS
<222> (1)...(60)

<400> 212

50 gcc cta gag gat ctg gtg cgg gcc tat cag tcg atg tct ggc acc cat 48
Ala Leu Glu Asp Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His
1 5 10 15

gag tcc aac acc
Glu Ser Asn Thr

60

55 20

890

<210> 213
<211> 20
<212> PRT
5 <213> Mycobacterium tuberculosis

<400> 213
Ala Leu Glu Asp Leu Val Arg Ala Tyr Gln Ser Met Ser Gly Thr His
1 5 10 15

10 Glu Ser Asn Thr
20

<210> 214
<211> 60
15 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
20 <222> (1) ... (60)

<400> 214
tcg atg tct ggc acc cat gag tcc aac acc atg gcg atg ttg gct cga 48
Ser Met Ser Gly Thr His Glu Ser Asn Thr Met Ala Met Leu Ala Arg
25 1 5 10 15

gat ggg gcc gaa 60
Asp Gly Ala Glu
20

30

<210> 215
<211> 20
<212> PRT
35 <213> Mycobacterium tuberculosis

<400> 215
Ser Met Ser Gly Thr His Glu Ser Asn Thr Met Ala Met Leu Ala Arg
1 5 10 15

40 Asp Gly Ala Glu
20

<210> 216
<211> 48
45 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
50 <222> (1) ... (48)

<400> 216
atg gcg atg ttg gct cga gat ggg gcc gaa gcc gcc aag tgg ggc ggc 48
Met Ala Met Leu Ala Arg Asp Gly Ala Glu Ala Ala Lys Trp Gly Gly
55 1 5 10 15

5 <210> 217
 <211> 16
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 217
 Met Ala Met Leu Ala Arg Asp Gly Ala Glu Ala Ala Lys Trp Gly Gly
 1 5 10 15
 10 <210> 218
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis
 15 <220>
 <221> CDS
 <222> (1)...(54)
 20 <400> 218
 atg tcg caa atc atg tac aac tac ccc gcg atg ttg ggt cac gcc ggg
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
 1 5 10 15
 25 gat atg 48
 Asp Met 54
 30 <210> 219
 <211> 18
 <212> PRT
 <213> Mycobacterium tuberculosis
 35 <400> 219
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
 1 5 10 15
 Asp Met
 40 <210> 220
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis
 45 <220>
 <221> CDS
 <222> (1)...(54)
 50 <400> 220
 atg ttg ggt cac gcc ggg gat atg gcc gga tat gcc ggc acg ctg cag
 Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln
 1 5 10 15
 55 agc ttg 48
 Ser Leu 54

1092

5 <210> 221
 <211> 18
 <212> PRT
 <213> Mycobacterium tuberculosis

10 <400> 221
 Met Leu Gly His Ala Gly Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln
 1 5 10 15
 Ser Leu

15 <210> 222
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis

20 <220>
 <221> CDS
 <222> (1)...(54)

25 <400> 222
 tat gcc ggc acg ctg cag agc ttg ggt gcc gag atc gcc gtg gag cag
 Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln
 1 5 10 15

30 gcc gcg
 Ala Ala

35 <210> 223
 <211> 18
 <212> PRT
 <213> Mycobacterium tuberculosis

40 <400> 223
 Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile Ala Val Glu Gln
 1 5 10 15
 Ala Ala

45 <210> 224
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis

50 <220>
 <221> CDS
 <222> (1)...(54)

55 <400> 224
 gag atc gcc gtg gag cag gcc gcg ttg cag agt gcg tgg cag ggc gat
 Glu Ile Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp

93

1

5

10

15

54

acc ggg
Thr Gly

5

<210> 225
<211> 18

10 <212> PRT
<213> Mycobacterium tuberculosis

<400> 225

Glu Ile Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp
1 5 10 15

Thr Gly

20 <210> 226
<211> 54
<212> DNA
<213> Mycobacterium tuberculosis

25 <220>
<221> CDS
<222> (1) ... (54)
<223>

30

<400> 226

35 agt gcg tgg cag ggc gat acc ggg atc acg tat cag gcg tgg cag gca
Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Ala Trp Gln Ala
1 5 10 15

48

cag tgg
40 Gln Trp

54

45 <210> 227
<211> 18
<212> PRT
<213> Mycobacterium tuberculosis

<400> 227

50 Ser Ala Trp Gln Gly Asp Thr Gly Ile Thr Tyr Gln Ala Trp Gln Ala
1 5 10 15
Gln Trp

55 <210> 228
<211> 51

1294

<212> DNA
<213> Mycobacterium tuberculosis

5 <220>
 <221> CDS
 <222> (1)...(51)
 <223>

10

<400> 228

15 tat cag gcg tgg cag gca cag tgg aac cag gcc atg gaa gat ttg gtg
Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp Leu Val
1 5 10 15

48

20 cgg
 Arg

51

<210> 229

<211> 17

<212> PRT

<213> Mycobacterium tuberculosis

25 <400> 229
Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp Leu Val
30 1 5 10 15
 Arg

35 <210> 230
 <211> 54
 <212> DNA
 <213> Mycobacterium tuberculosis

40 <220>
 <221> CDS
 <222> (1)...(54)

<400> 230

45 gcc atg gaa gat ttg gtg cggttatcatgcgatgtccagcaccat
Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His
1 5 10 15

48

50 gaa gcc
 Glu Ala

54

55 <210> 231
 <211> 18
 <212> PRT
 <213> Mycobacterium tuberculosis

1895

<400> 231
Ala Met Glu Asp Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His
1 5 10 15
5 Glu Ala

<210> 232
<211> 54
10 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
15 <222> (1)...(54)

<400> 232
gcg atg tcc agc acc cat gaa gcc aac acc atg gcg atg atg gcc cgc 48
Ala Met Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg
20 1 5 10 15

gac acg 54
Asp Thr

25

<210> 233
<211> 18
<212> PRT
30 <213> Mycobacterium tuberculosis

<400> 233
Ala Met Ser Ser Thr His Glu Ala Asn Thr Met Ala Met Met Ala Arg
1 5 10 15
35 Asp Thr

<210> 234
<211> 48
40 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
45 <222> (1)...(48)

<400> 234
atg gcg atg atg gcc cgc gac acc gcc gaa gcc gcc aaa tgg ggc ggc 48
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
50 1 5 10 15

<210> 235
<211> 16
<212> PRT
55 <213> Mycobacterium tuberculosis

1496

<400> 235
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
1 5 10 15

5 <210> 236
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

10 <220>
<221> CDS
<222> (1)...(60)

<400> 236
15 gtg tcg cag agt atg tac agc tac ccg gcg atg acg gcc aat gtc gga 48
Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly
1 5 10 15

20 gac atg gcc ggt 60
Asp Met Ala Gly
20

25 <210> 237
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 237
30 Met Ser Gln Ser Met Tyr Ser Tyr Pro Ala Met Thr Ala Asn Val Gly 75
1 5 10 15
Asp Met Ala Gly
20

35 <210> 238
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

40 <220>
<221> CDS
<222> (1)...(60)

<400> 238
45 atg acg gcc aat gtc gga gac atg gcc ggt tat acg ggc acg acg cag 48
Met Thr Ala Asn Val Gly Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln
1 5 10 15

50 agc ttg ggg gcc 60
Ser Leu Gly Ala
20

55 <210> 239
<211> 20
<212> PRT

1597

<213> Mycobacterium

tuberculosis

<400> 239

Met Thr Ala Asn Val Gly Asp Met Ala Gly Tyr Thr Gly Thr Thr Gln
5 1 5 10 15
Ser Leu Gly Ala
20

<210> 240

10 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

15 <221> CDS
<222> (1)...(60)

<400> 240

tat acg ggc acg acg cag agc ttg ggg gcc gat atc gcc agt gag cgc
20 Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Arg
1 5 10 15

acc gcg ccg tcg
Thr Ala Pro Ser

48

20

60

<210> 241

30 <211> 20
<212> PRT
<213> Mycobacterium tuberculosis

<400> 241

Tyr Thr Gly Thr Thr Gln Ser Leu Gly Ala Asp Ile Ala Ser Glu Arg
35 1 5 10 15
Thr Ala Pro Ser
20

<210> 242

40 <211> 60
<212> DNA
<213> Mycobacterium tuberculosis

<220>

45 <221> CDS
<222> (1)...(60)

<400> 242

gat atc gcc agt gag cgc acc gcg ccg tcg cgt gct tgc caa ggt gat
50 Asp Ile Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp
1 5 10 15

48

ctc ggg atg agt
Leu Gly Met Ser

60

20

16.99

<210> 243
<211> 20
<212> PRT
5 <213> Mycobacterium tuberculosis

<400> 243
Asp Ile Ala Ser Glu Arg Thr Ala Pro Ser Arg Ala Cys Gln Gly Asp
1 5 10 15

10 Leu Gly Met Ser
20

<210> 244
<211> 60
15 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
20 <222> (1)...(60)

<400> 244
cgt gct tgc caa ggt gat ctc ggg atg agt cat cag gac tgg cag gcc 48
Arg Ala Cys Gln Gly Asp Leu Gly Met Ser His Gln Asp Trp Gln Ala
25 1 5 10 15

cag tgg aat cag 60
Gln Trp Asn Gln
20

30

<210> 245
<211> 20
<212> PRT
35 <213> Mycobacterium tuberculosis

<400> 245
Arg Ala Cys Gln Gly Asp Leu Gly Met Ser His Gln Asp Trp Gln Ala
1 5 10 15

40 Gln Trp Asn Gln
20

<210> 246
<211> 60
45 <212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> CDS
50 <222> (1)...(60)

<400> 246
cat cag gac tgg cag gcc cag tgg aat cag gcc atg gag gct ctc gcg 48
His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala Leu Ala
55 1 5 10 15

47 99

cg_g g_c c_t c_g t_a c_g
 Arg Ala Tyr Arg
 20

5 <210> 247
 <211> 20
 <212> PRT
 <213> Mycobacterium tuberculosis

10 <400> 247
 His Gln Asp Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Ala Leu Ala
 1 5 10 15

15 Arg Ala Tyr Arg
 20

20 <210> 248
 <211> 60
 <212> DNA
 <213> Mycobacterium tuberculosis

25 <220>
 <221> CDS
 <222> (1)...(60)

30 <400> 248
 g_{cc} a_{tt} g_{ag} g_{ct} c_{tc} g_{cg} c_{gg} g_{cc} t_{ac} c_{gt} c_{gg} t_{gc} c_{gg} c_{ga} g_{ca} c_{ta}
 Ala Met Glu Ala Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu
 1 5 10 15

35 c_{gc} c_{ag} a_{tc} g_{gg}
 Arg Gln Ile Gly
 20

40 <210> 249
 <211> 20
 <212> PRT
 <213> Mycobacterium tuberculosis

45 <400> 249
 Ala Met Glu Ala Leu Ala Arg Ala Tyr Arg Arg Cys Arg Arg Ala Leu
 1 5 10 15

50 Arg Gln Ile Gly
 20

55 <210> 250
 <211> 60
 <212> DNA
 <213> Mycobacterium tuberculosis

60 <220>
 <221> CDS
 <222> (1)...(60)

65 <400> 250

~~18~~ 100

cgg tgc cgg cga gca cta cgc cag atc ggg gtg ctg gaa agg ccg gta 48
Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly Val Leu Glu Arg Pro Val
1 5 10 15

5 ggc gat tcg tca 60
Gly Asp Ser Ser
20

10 <210> 251
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

15 <400> 251
Arg Cys Arg Arg Ala Leu Arg Gln Ile Gly Val Leu Glu Arg Pro Val
1 5 10 15
Gly Asp Ser Ser
20

20 <210> 252
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

25 <220>
<221> CDS
<222> (1)...(60)

30 <400> 252
gtg ctg gaa agg ccg gta ggc gat tcg tca gac tgc gga acg att agg 48
Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
1 5 10 15

35 gtg ggg tcg ttc 60
Val Gly Ser Phe
20

40 <210> 253
<211> 20
<212> PRT
<213> Mycobacterium tuberculosis

45 <400> 253
Val Leu Glu Arg Pro Val Gly Asp Ser Ser Asp Cys Gly Thr Ile Arg
1 5 10 15
Val Gly Ser Phe
20

50 <210> 254
<211> 60
<212> DNA
<213> Mycobacterium tuberculosis

55 <220>

19101

<221> CDS

<222> (1)...(60)

<400> 254

5 gac tgc gga acg att agg gtg ggg tcg ttc cgg ggt cgg tgg ctg gac
Asp Cys Gly Thr Ile Arg Val Gly Ser Phe Arg Gly Arg Trp Leu Asp
1 5 10 15

48

ccg cgc cat gcg

60

10 Pro Arg His Ala
20

<210> 255

<211> 20

<212> PRT

<213> Mycobacterium tuberculosis

<400> 255

20 Asp Cys Gly Thr Ile Arg Val Gly Ser Phe Arg Gly Arg Trp Leu Asp
1 5 10 15

Pro Arg His Ala
20

<210> 256

<211> 60

<212> DNA

<213> Mycobacterium tuberculosis

<220>

<221> CDS

<222> (1)...(60)

<400> 256

35 ccg ggt cgg tgg ctg gac ccg cgc cat gcg ggt cca gcc acg gcc gcc
Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro Ala Thr Ala Ala
1 5 10 15

48

gac gcc gga gac

60

40 Asp Ala Gly Asp
20

<210> 257

<211> 20

<212> PRT

<213> Mycobacterium tuberculosis

<400> 257

50 Arg Gly Arg Trp Leu Asp Pro Arg His Ala Gly Pro Ala Thr Ala Ala
1 5 10 15

Asp Ala Gly Asp
20